

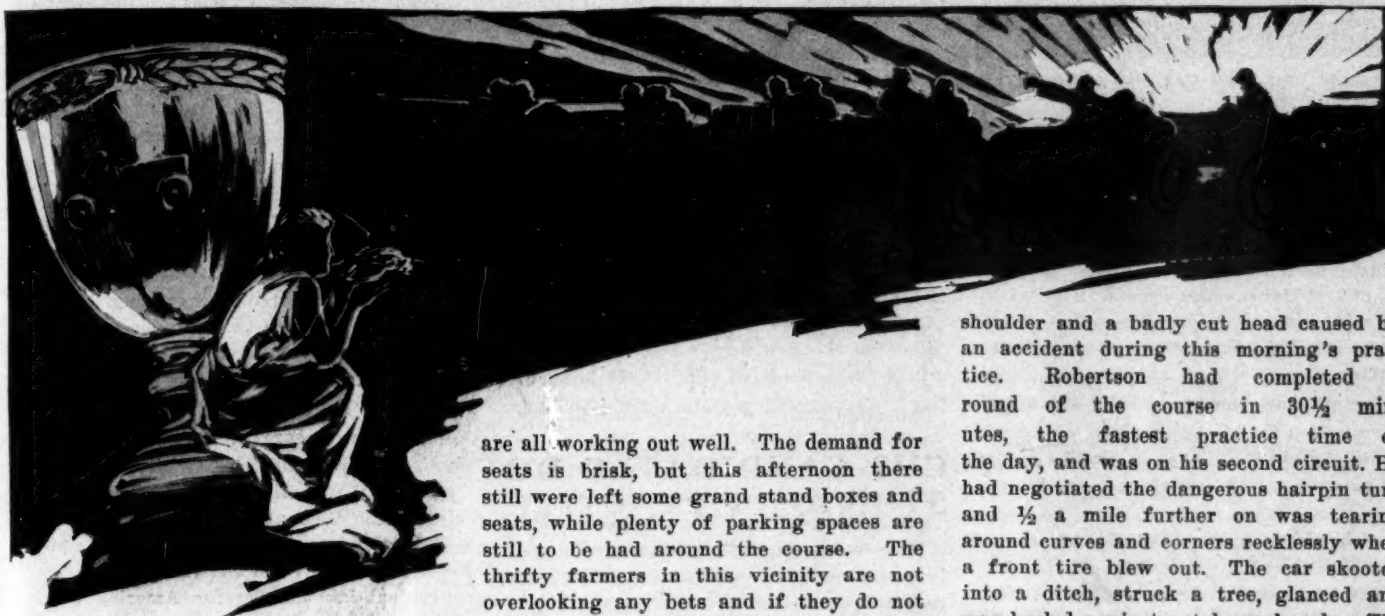
MOTOR AGE

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AMERICA'S VANDERBILT HOPES RUN HIGH



NEW YORK, Sept. 19—Special telegram —On the eve of the eliminating trial to select a team of five cars to represent America in the Vanderbilt cup final it looks as if the contest will be almost as interesting as when America, France, Germany and Italy line up to do battle for the trophy that undoubtedly is the legitimate successor to the Bennett as the international automobile cup. Twelve cars, all tuned up to concert pitch, are on the ground, the training camps are regular beehives of activity and from all sections of the country come interested operators to see the grand struggle. When the writer says twelve he has in mind the accident which makes the Apperson a doubtful starter, and also that the B. L. M. is still an uncertain quantity, it not having been seen in Nassau county. Its makers say it will be on the spot ready to be weighed in Friday, but the railbirds are a bit Missouriish. The Maxwell will be here tomorrow.

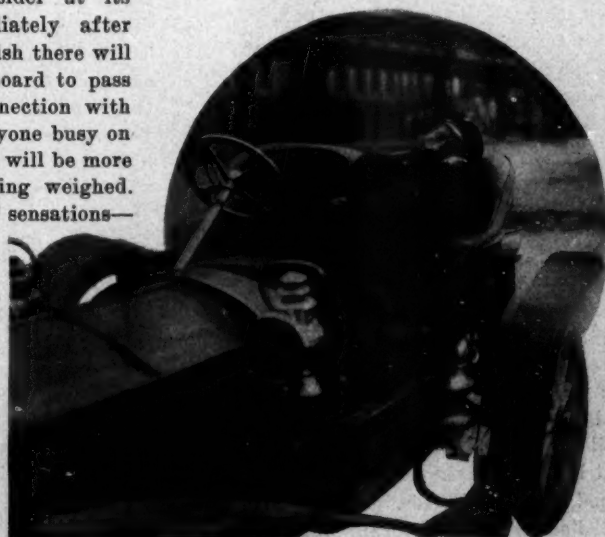
Here it is practically 3 days before the contest and everything is running smoothly. Chairman Thompson and the other members of the commission have been hustling for a week past and their plans

are all working out well. The demand for seats is brisk, but this afternoon there still were left some grand stand boxes and seats, while plenty of parking spaces are still to be had around the course. The thrifty farmers in this vicinity are not overlooking any bets and if they do not reap a golden harvest from these races it will not be because they do not know how to charge.

There will of course be several meetings before the race Saturday. The touring committee of the A. A. A. is billed for a meeting tomorrow afternoon to thresh over the Glidden tour and frame up a report for the commission to consider at its session October 5. Immediately after Deming and his colleagues finish there will be a meeting of the racing board to pass on important matters in connection with the race. This will keep everyone busy on Thursday and on Friday there will be more doing when the cars are being weighed.

Today furnished a couple of sensations—the smashing of the Apperson cup candidate and the announcement that William K. Vanderbilt, Jr., will compete for his own cup through having purchased a Mercedes. As a result of the accident George Robertson, the driver, and Arthur Warren, the mechanic, are laid up in the Mineola hospital, the former with a broken hip and a dislocated

shoulder and a badly cut head caused by an accident during this morning's practice. Robertson had completed a round of the course in 30½ minutes, the fastest practice time of the day, and was on his second circuit. He had negotiated the dangerous hairpin turn and ½ a mile further on was tearing around curves and corners recklessly when a front tire blew out. The car skooted into a ditch, struck a tree, glanced and was hurled against a telegraph pole. The impact upset the car and threw its crew out, the mechanic being tossed so high that he struck the wires above. The car actually wrapped itself around the pole. Its engine escaped unhurt. The car was one of the favorites in the race and its driver was deemed the boldest in the contest.



CHARACTERISTIC POSE OF LE BLON, A THOMAS PILOT



PREPARING THE POPE CAR FOR A TRIAL TRIP



GARDEN CITY HOTEL, WHERE THE CLANS GATHER

Not a slate failed to include Robertson as a likely member of the American team. To its credit was the fastest practice lap in 29 minutes.

Some are inclined to think that this accident means that the Apperson is down and out so far as the race is concerned, but stout-hearted Edgar Apperson thinks otherwise. He was on the spot immediately after the upset and at once set about finding out how matters stood. He immediately wired for his brother, Elmer Apperson, to hurry here, then put a gang of men to work on the apparent ruins. Matters did not look so dark when he completed his investigation and this afternoon he was of the opinion that he could patch the car up so it will be ready for starting on Saturday. Westerners are hoping he can, for the crimson scooter has won a high place in their esteem.

W. K. Vanderbilt, Jr., startled motor-dom this morning when the announcement was made that the young millionaire had purchased the 120-horsepower Mercedes entered by C. L. Charley, of Paris, for the German team and that his application had been made to the commission to be substituted for Bariaux as its driver in the race. The purchase followed a tryout of the car during practice hours yesterday, which netted 54 minutes for a round in the fog. Chairman Thompson will now probably act as referee. It is a noteworthy fact that the cup donor's cousin, Elliot F. Shepard, will drive as a member of the French team.

With the day of the race so near practice on the course is less general and more cautious. The entire Thomas and Frayer-Miller teams were out this morning and made rounds as follows: Le Blon, 49 and 38; Caillois, 40 and 36; Roberts, 40, 36½ and 35; Frayer, 51; Belden, 54½ and Lawwell 35½ and 40. Haynes, Tracy, Keeler and Lytle made slow circuits and were not timed by the railbirds.

Following the Vanderbilt announcement came Barney Oldfield, seeking a chance to

show he can drive as well on the road as he can on the track. The Green Dragon's master blew in from Bridgeport and as soon as he heard of the Mercedes transfer he immediately got in touch with the Mercedes Import Co. and made the proposition that he be allowed to take the wheel of the Mercedes. Of course he was referred to the new owner and it is said he will make a personal appeal. It is hardly likely that it will get him anything.

CUP CANDIDATES DO STUNTS IN PRACTICE

New York, Sept. 18—Practice has been in progress steadily since the ban was raised last Wednesday. This morning a thick fog enveloped the course. It lightened a bit after 6 o'clock and gave two cars a fair chance for a brisk canter—Keller and Lytle, both of whom started later, scored 39 and 41 minutes respectively with the Oldsmobile and the Pope-Toledo. On his second round with the Frayer-Miller 41 was also made by Frank Lawwell. The much-touted Thomas trio did not reach the course until yesterday. There is great interest in these cars, which as a make are the decided favorites for the American race, and the biggest crowd yet gathered to greet them. Only Le Blon, however, went out, Captain Caillois not wishing to take any risk with the other

two cars, which he said were running well and could wait for a speed try-out later. Le Blon was the first to start and had the worst of the fog. He jogged around in 61 minutes, including a stop to put in two spark plugs. On the second round Le Blon was reported by incoming drivers as having stopped on Manhasset hill. When the report was received he had only been out on the course 45 minutes, so the delay may have been only temporary.

The Thomas cars are massive, impressive looking machines with confessed Brasier features all over them. With Caillois and Le Blon at their wheels they are reckoned as more than dangerous, many naming two of them to win places. The individual favorite for the American race is Joe Tracy. The reputation he won by finishing third in the big race last year and the splendid appearance of the Locomobile added to its easy and fast running in practice under an evident pull readily account for this. There has not been a slate made that does not include Tracy for a place on the American team. The ship-shape appearance of the Locomobile camp, its order and cleanliness, the neatness of the car and the beauty and simplicity of its mechanism contribute to the favorable impression. The second car, a duplicate of the one in use, was driven down from Bridgeport yesterday by A. L. Riker. So confident is the Locomobile camp of Tracy qualifying that removable rims will not be fitted until after the trials. In addition to a half a dozen repair stations, Tracy will have thirty emergency men scattered along the course. Two consecutive laps in 31½ and 32 minutes are Tracy's fastest practice times. In addition to today's 55 in the fog he has also done 35 and 39. He says he thinks he can cover the circuit in 28. Joe is very conservative, you know, in his statements.

The Apperson candidate has quickly taken its place among the favorites. The first time out George Robertson did two



W. K. VANDERBILT, JR., IN HIS MERCEDES

laps in 34 and 29, the latter being the fastest practice circuit yet. Last year's Christie pilot has skill, strength and daring. He can be relied on to take any risk in an emergency. On Sunday he was out again and made a round in 31. The second round, though, he had trouble with his springs and gasoline tank, which took him until today to remedy. He was out this morning but only passed Krug's corner once.

Another prime favorite for a place on the American team is Herbert Lytle, who is reckoned as having a sturdy, speedy car, which, like the Apperson, has long been finished and has been subjected to the severest tests on the road. Lytle is taking no chances in practice by any grandstand play. His fastest lap has been run in 35 minutes. Three laps in 37 and two in 41 are his other training records to date.

A slow round of the course in 63 minutes this morning is the only complete circuit Ralph Mongini has made with the Matheson. The first day out he had ignition troubles through the breaking of a bracket and the second day he broke his gasoline tank. The 50½ seconds for a mile with seven passengers aboard scored by the Matheson at Atlantic City has brought the Matheson not a few confident believers.

The three Frayer-Millers have been doing constant practice. Belden has done the most, having made six circuits in 55, 40, 41½, 39½, 35 and 50. Lee Frayer's score has been 41, 38, 44, 42, and Frank Lawwell's 54, 41 and 41. The Frayer-Millers have abandoned wire for wooden wheels. John Haynes has made two circuits of the course in the Haynes, one in 40 and the other in 41.

The accident to the Oldsmobile on Wednesday, wherein it sprung its frame and broke a wheel through an encounter with a telegraph pole upsetting the car, has allowed this cup candidate but little



RACE INFLUENCE ON THE YOUNG

practice. It has, however, two laps to its credit made in 39 and 41 minutes respectively. The eight-cylinder Maxwell, which was to have been shipped yesterday, blew out a cylinder head and is not expected to reach the course before Thursday morning. In the meantime its pilot, Wally Owen, is studying the course in a touring car.

Sidney S. Breese told the writer today that they have had troubles of their own with the B. L. M., but expected the car on the course tomorrow. Walter Christie is busy turning his 60-horsepower touring car into a makeshift racer. He says it can show better than 60 miles an hour and is by no means utterly discouraged of winning with it a place on the team.

DRIVERS DRAW FOR POSITIONS AT START

New York, Sept. 17—Candidates for places on the American team in the Vanderbilt cup race drew for the order of their starting in next Saturday's contest at the Garden City hotel on Saturday night. The drawing was the last important preliminary to the struggle, barring the weighing in of the cars next Friday. The lottery of the line-up occurred in the presence of Chairman Thompson and Messrs. Vanderbilt, Webb, Butler, Pardington, Batchelder and Weiss, of the racing board. At first there was a drawing for

the order of drawing in the presence of the board members. The final raffle followed in the presence of the newspaper men and all who cared to come in and witness it. There were many of the latter on hand, for the gathering of interested enthusiasts and camp followers was large.

A. L. Riker won the right to choose the first envelope from the lay-out on the table and drew No. 12 for Joe Tracy. The Oldsmobile representative, who was fifth to choose, drew No. 1 for Ernest Keeler, Herb Lytle and Mongini faring next in the good luck of securing a clear course at the start. The Thomas trio were fortunate in drawing places in a bunch, split only by Wally Owen and the Maxwell, with their captain, Caillois, as pacemaker of the team. Luckless 13 was omitted, so that the numbers in the accompanying table giving the order of start run up to 16.

Following the drawing the contestants received final instructions as to the weighing in, which will take place at Garden City between 10 a. m. and 5 p. m., though all cars must report at Garden City before noon. The principal rules governing the weighing in and out are as follows:

The examination will consist of a test of the number of speeds, efficiency of brakes and the direction of exhaust. Brakes must be sufficiently effective to skid both rear wheels. The exhaust must be so directed that it does not raise dust.

Cars will be weighed empty—that is to say, without gasoline, oil or water. The limit of weight is 2,204 pounds.

Batteries, cushions and bonnet need not be weighed, except that the bonnet must be weighed if it is to be used during the race.

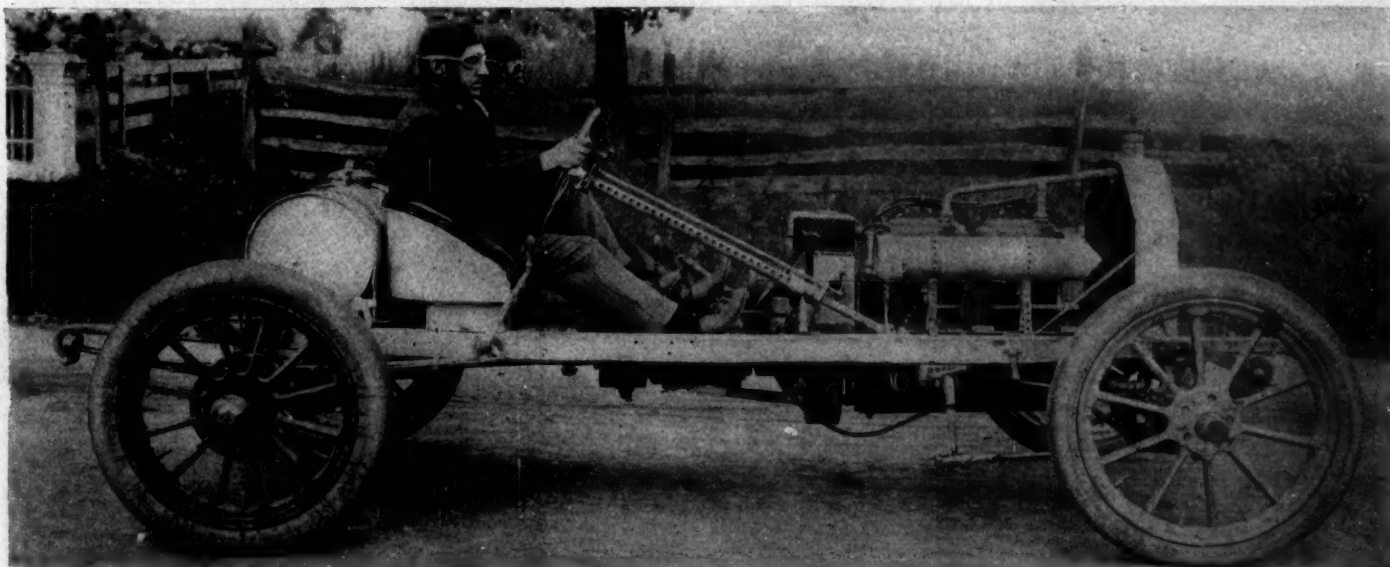
Cars equipped with magnetos may either be weighed in with a limit of 2,219 pounds, or without their magnetos at 2,204 pounds.

Starting cranks, even though detachable, must be weighed with the car.

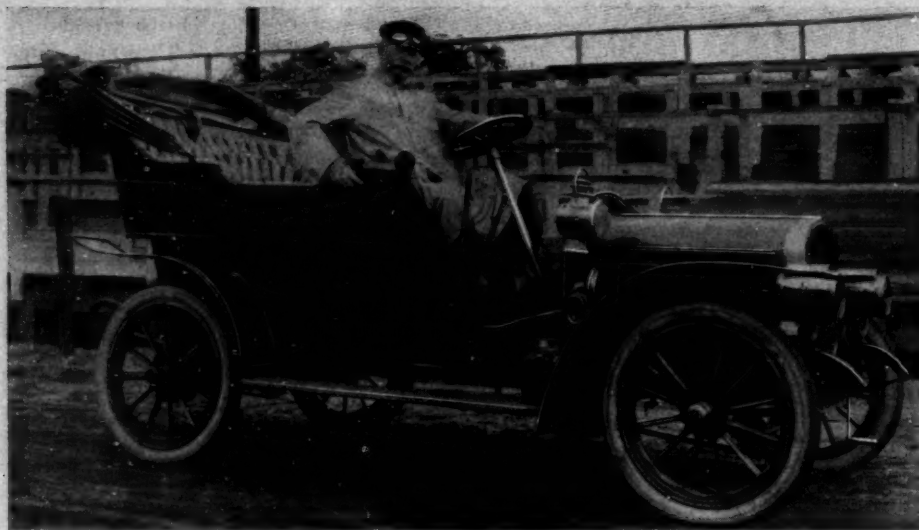
Any tool boxes bolted or fastened to a car must be weighed as a part of the car, if used in the race.

Contestants must bring gasoline and oil so that preparations may be made for examination of cars under their own power immediately after weighing.

Obey promptly the black and white checked flag signal which will be given at the "start



ERNEST KEELER AND MECHANIC IN THE OLDSMOBILE RACING MACHINE



CHAIRMAN THOMPSON IN A CORBIN, THE OFFICIAL CAR

and finish" line at the conclusion of the race. A representative of the commission will be at the first crossroad, below the grandstand, prepared to accompany you immediately to the weighing place at Garden City. The road will be marked by a checked flag.

It will be the duty of each representative to see that nothing is done to the car to which he is assigned that may affect its weight or any of its parts or equipment until it is definitely released by the weighing committee.

Contestants will be required to furnish receptacles for oil and gasoline, so that their cars may be promptly emptied before weighing.

Contestants are reminded that every part of a car, and every item of its equipment, no matter how unimportant, must be made in the country from which the entry hails.

The American race will start at 5 o'clock Saturday morning, the cars being sent away at 1 minute intervals.

Walter Christie's 110-horsepower racer, which has a mile record of 35 seconds, made on Atlantic City beach last April and in which the popular designer, clubman and driver had unbounded confidence, was badly injured in a collision with a telegraph pole on the Mineola avenue stretch during the early morning practice on Saturday. It was the second accident that had befallen the car through collision with a pole. The morning before the car had skidded on the rain-soaked oil on Manhasset hill. Christie and his me-

chanic escaped without injury and the car was only slightly damaged. The clutch, however, had become jammed. Christie thought to release it en route on Saturday, so steering with his left hand he reached for the clutch with his right. As he did so the car swerved to the left and hit the pole. The collision knocked the motor, which was in front, off its base and crumpled up the radiator. The telegraph pole was knocked 6 inches from its base. The fact that Mr. Christie was leaning to the right probably saved his life, for he got off practically scot free. Christie is resolved to try his direct drive on the front axle construction in the race, however, and so will pilot a stripped 60-horsepower touring car in the contest. He has had it out on the course already and on-lookers say it is a flyer.

The drivers for Saturday have now all been finally determined upon. J. Fred Betz, III, a young Philadelphia millionaire, who was down to pilot the Maxwell, has retired and Wally H. Owen, now a Quaker but recently of New York, has been engaged to take his place. Owen is a veteran driver with much experience in track and reliability test pilotage and is

rated as one of the best handlers of a car in New York. He has long yearned for a chance at a big race. F. E. Moscovics has resigned his seat on the Frayer-Miller entered by W. J. Miller, in favor of Frank Lawwell, of the Oscar Lear factory force. Two notable team candidates have so far been absent from the course. Of the two Maxwells the eight-cylinder car has finally been chosen. It is understood that the twelve-cylinder Maxwell's debut will be deferred until the Ormond meet, though it is said that it will be also taken to the training camp on Long Island today.

Little is known of the B. L. M. candidate. Some reports go so far as to relate that it is not yet even fully assembled. During the visit of your correspondent yesterday to Joe Tracy's camp at Bull's Head tavern A. L. Riker told your correspondent that he would drive down the other of the twin Locomobiles from Bridgeport today. It is an exact duplicate of the one Tracy is now using in practice.

The trio of Thomas flyers reached town yesterday. Caillois and Roberts started with their mounts for the course this morning. A. Le Blon expected to leave with his this afternoon.

Chairman Jefferson De Mont Thompson has selected the Corbin as the official car to be used by Vanderbilt cup race commission. Lafayette Markle, manager of New York branch of the Corbin company, has tendered Chairman Thompson for this purpose a new car, finished in French gray, which went into commission Saturday.

Owing to several tank cars going astray there has been much delay recently in completing the oiling of the course. Lively telephoning yesterday, however, located them and they were hurried to Mineola from Greenpoint. Big gangs of men are also at work mending the road. The condition of the road has probably slowed the course from 3 to 5 minutes for the circuit. It is believed that when the drivers cut loose their cars in earnest at least 26 minutes for a lap will be touched.

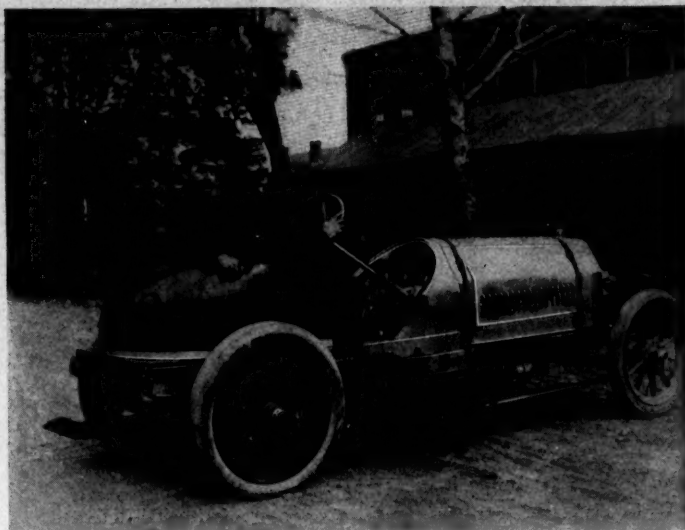


CHRISTIE'S FRONT-DRIVE CAR AFTER ITS ACCIDENT



WHITE STEAMER AS THE DIAMOND TIRE REPAIR WAGON

FIVE PROMINENT CUP CANDIDATES



RIGHT SIDE OF THOMAS-CAILLOIS UP

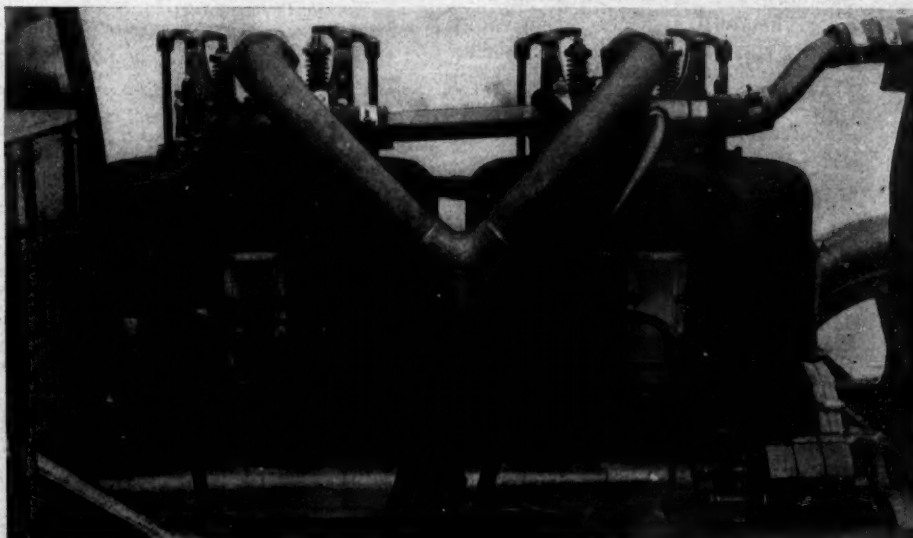


EXHAUST SIDE OF THOMAS-LE BLON UP

THE three Thomas Vanderbilt cup racers are rated 115 horsepower and look light and small, with the exception of the motors. Several months were consumed in perfecting designs. More than 3,000 different parts are used. There are no castings except the cylinders and aluminum parts. The axles are hand forged, milled and chiseled to a finish, and weigh about 30 pounds. The engines, although enclosed under hoods, are in full view of the drivers and assistants. The description of one motor is that of another. The motor is of the four-cylinder vertical type, the cylinders being cast in pairs, with the water-jackets integral. The rated horsepower is given at 115, but each motor has developed more than this on a brake test. The stroke is $5\frac{1}{2}$ inches and the bore is $6\frac{3}{4}$ inches. A special system is used to relieve the compression. The relieving cams are in two pieces and are lifted by either pushing or pulling, the action being on a shaft which works inside of the first shaft. All of the gears and the camshaft are encased, one camshaft being used. Both the inlet and exhaust valves are mechanically operated and are on the same side of the motor, the inlet valve being on top of the cylinders and the exhausts at the bottom of the posts, the former being operated by walking beams. A single ignition system is used in the form of high tension magneto. Cooling is furnished by cellular radiator without a fan. The lack of a fan is accounted for by the fact that the cars will seldom be run at a speed of less than 40 miles an hour, and at this speed the fan will not be necessary to draw the air through the radiator, since the pressure against the front of the car will force it through in even greater quantity than could be drawn by a fan. A seven-feed mechanically-operated oiler sends oil to the cylinders, crankcase and universal joints, and this is augmented by the splash system. The crankcase, with the engine

base, is aluminum and bolted directly to the main frame. The crank is large and is mounted in three phosphor bronze bearings. The clutch is of the cone type, with a locking device, and has large diameter. Between the clutch and transmission are two universal joints. The transmission is of the selective type, with three forward speeds. On third speed the drive is direct. The drive is by double chain, the ratio for the sprockets being practically one to one. The carbureter, which is waterjacketed, is automatic and supplementary, the air admission being by dash port. The frames are hand-hammered throughout, the same process being used for the cross frame members, of which there are four. The axles are of the drop-forged I-beam type. The cross steering rod is in front of the rear axle and is fitted with a unique attachment, consisting of what is known as dog killer. This is a sharp-edged piece of wood fitted and bound by copper wire to the cross steering rod and running almost its entire

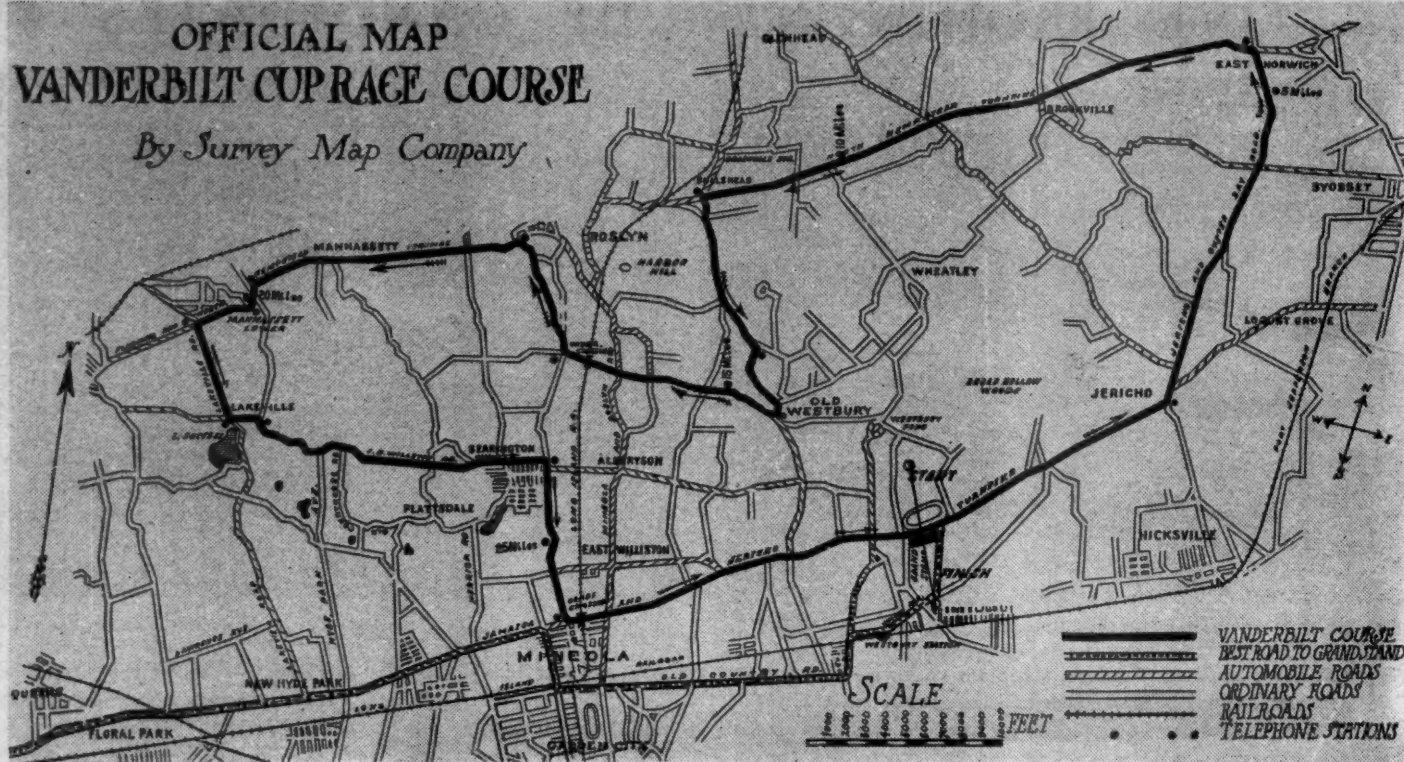
length. The sharp edge of the wood presents a cutting surface sharp enough to cut a dog in two and prevent injury to the cross steering rod by the heavy impact. The radius rods are of chrome nickel steel and are elastic, being fitted with heavy springs at the driving sprocket ends. The front and rear springs are semi-elliptic and are supplemented by the Hartford-Truffault shock absorbers. The brakes are all metallic, one being on the countershaft and two, of the internal-expanding type, in the rear hubs. The front wheels are 32 inches in diameter and are fitted with 4-inch Diamond tires, while the rear wheels are 34 inches in diameter and are fitted with $4\frac{1}{2}$ -inch tires. The rims on the rear wheels are removable. They were constructed by the Diamond company. These rims are fastened to the wheels by six bolts and are easily removed by means of a socket wrench—the entire operation of removing a rim and putting on another one occupying approximately 1 minute. The gasoline



INTAKE SIDE OF MOTOR USED IN THE THREE THOMAS RACING MACHINES

OFFICIAL MAP VANDERBILT CUP RACE COURSE

By Survey Map Company



tank is of 55 gallons' capacity and is constructed of copper of a special design, the seats being sunk in the tank. The muffler discharges in the rear of the car, and slightly upward. The hood is of aluminum and covers every part of the motor except the exhaust pipe, which leads through and connects the muffler hung at the side of the car. The dash is entirely free from any accessories, all that appears through it being the foot brake and clutch pedals and the pedal.

THE OLDSMOBILE RACER

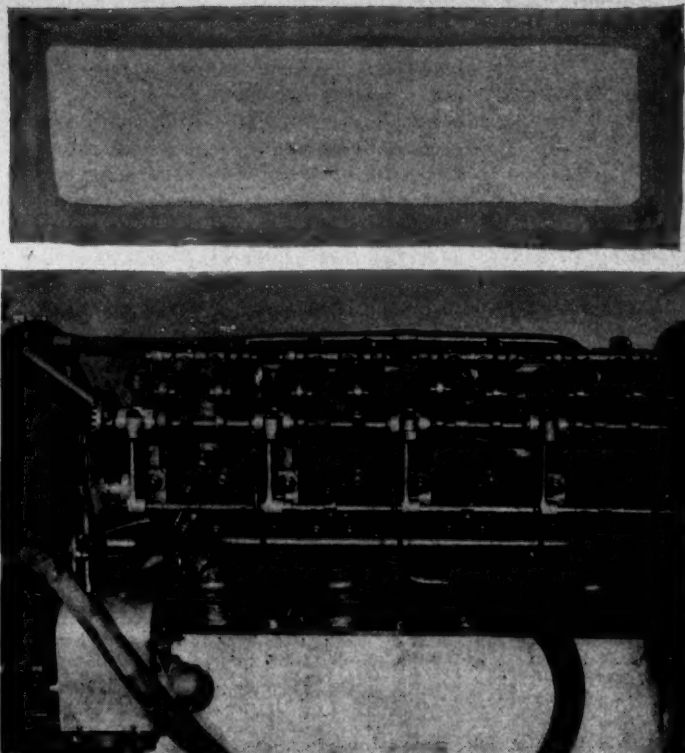
Except that the horsepower has been increased by raising the compression and a few small changes made necessary to convert the machine into a racer, the Oldsmobile is a stock car. Keeler's detachable rims are fitted and the machine weighs 2,000 pounds. The stroke is $4\frac{1}{4}$ inches and the bore $4\frac{1}{2}$ inches, the estimated horsepower being 40-45. The wheels are wood, 34 by 4 inches and 4-inch Diamond tires are used all around. There are four cylinders, cast in pairs, with the valves on the left, Renault fashion. The motor is of the same general design as of the past season, of the Renault type, with mechanically-operated valves located on the left side actuated by a case-hardened and ground integral shaft. Lubrication is by splash, maintained at a constant level by an internally contained oil pump in the crankcase; the loss of oil due to consumption is taken care of by an auxiliary tank located in this especial case on the left-hand side, rear of the motor, the oil from the same being forced by a plunger pump, operated by the mechanic through a three-way valve. The cooling system consists of the gear-driven gear pump, all gears being mounted on Tobin bronze shafting,

the pumpcase and cover being of bronze casting and mounted in recess cored for that purpose in the upper half of the crankcase. The water is introduced in the bottom right-hand side jackets, taken off the top of the center; the general flow is deflected around the valve chambers. Water is carried on a special cellular radiator, thence through a strainer back to the pump. A $1\frac{1}{2}$ -inch Kingston side valve carbureter is used; rigidly anchored on the tubular intake header, passing between and below the jackets of the twin cylinder and branching to the respective ports; the exhaust being allowed to escape unhampered in the open air. All valves are two-piece, threaded, brazed and riveted on the machine steel stems; the valve plungers are of the roller clevis type, reciprocating in cast bronze guides of ample bearing and maintained in constant contact on cams by small helical springs to prevent any undue clash of contact. The adjustment is between plungers and the stems are provided for by a case-hardened cap and jam nut. The crankshaft and connecting rods are of drop forged construction, all bearings being Parsons white

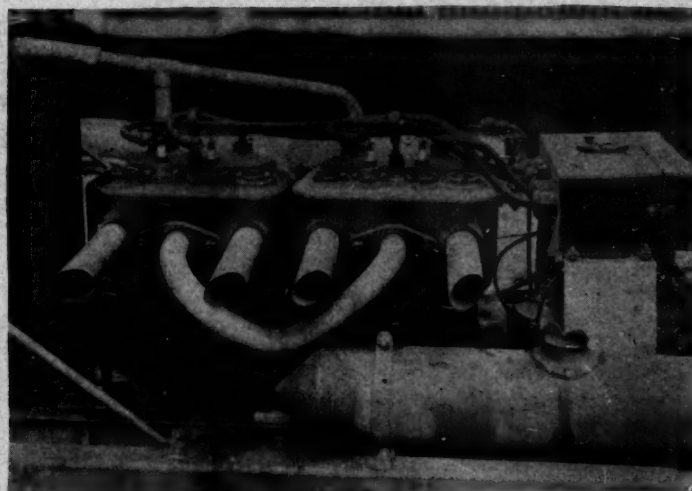
brass, the connecting rods being bushed in piston end by case-hardened and ground machine steel bushing. The clutch is of the reverse cone type of 15-inch diameter and 3-inch leather face, the leather being extended on the lesser periphery by flat springs and plugs which are riveted to the inside and extend through cone rims. The clutch is operated from below by a yoke and collar, the bearing of the rockshaft maintained on right and left by perforated sheet steel brackets; the foot lever is long and horizontal, extending rearward directly between the main and sub-frame, its excessive length giving ease of control. A universal joint is provided between the clutch and transmission, insuring lack of distortion of parts due to any frame variation. Transmission is of the three-speed and reverse selective type; high speed on direct and spring recovery on reverse. In this particular instance the countershaft is so equipped as to be thrown out of mesh by the mechanic when not in use. All gears are drop forged Alpha steel, case-hardened. The speed control is by means of a short oscillating lever projecting above the transmission housing immedi-

ORDER OF START FOR THE AMERICAN ELIMINATING TRIAL

No.	Driver	Car	H.P.	Entrant
1	Ernest Keeler	Oldsmobile	60	G. M. Smith
2	Herbert Lytle	Pope-Toledo	120	A. A. Pope
3	Ralph Mong'ni	Matheson	60	C. A. Singer
4	Gustave Calliois	Thomas	115	E. R. Thomas
5	W. H. Owea	Maxwell		Maker
6	Herbert Le Blois	Thomas	115	C. A. Coey
7	Montague Roberts	Thomas	115	H. S. Houpt
8	Lee Frayer	Frayer-Miller	110	J. F. Stone
9	Walter Christie	Christie	60	Walter Christie
10	George Robertson	Apperson	80	Maker
11	Frank Lawwell	Frayer-Miller	110	W. J. Miller
12	Joseph Tracy	Locomobile	90	S. H. Davis, Jr.
14	John Haynes	Haynes	60	Elwood Haynes
15	Henri Dolneau	B. L. M.	85	Makers
16	E. H. Belden	Frayer-Miller	110	Oscar S. Lear



CAMSHAFT SIDE OF THE MATHESON MOTOR



EXHAUST SIDE OF THE OLDSMOBILE MOTOR

ately in front of driver. The transmission base is of cast aluminum, three-point suspension, carrying the transmission brake on a swivel block, which is located directly under the third leg, the same being to the rear and resting on a middle cross member of the frame. This brake is of 2 $\frac{3}{4}$ -inch face, superior steel band, camelshair lined and adjusted by means of the limited action of the set screw directly above the aforementioned leg. The brake drum is of pulley pattern, cast iron, which offers the best surface to the adhesive action of the camelshair lining. This transmission brake is operated by a lever anchored directly on top of the transmission case to the left of the driver with a spring recovery. The brake drum is carried on the yoke member of the universal joint, which is of the sliding square nut and pin type. This universal joint is packed in grease totally enclosed by a heavy leather telescopic boot. These joints are carried at either end of the propeller shaft, the same being equalized by conical springs internally contained in the joint. The rear joint is squared to the stub shaft on a

standard Timken 2-to-1 rear axle. All hub brakes are of the internal expanding that lies horizontally on the right-hand side and within easy reach of the driver. Air pressure forces gasoline from this tank to the auxiliary tank, which is supported by strap iron brackets on the right-hand side of the motor. The auxiliary tank feeds by gravity to the carburetor. The air pressure on the main supply tank is supplied by a hand plunger pump on the right-hand side of the mechanic's seat. The gasoline level in the auxiliary tank is regulated by a sight-glass mounted on the rear of same. The springs are of Krupp steel, special flat, 2 $\frac{1}{4}$ inches wide, very elastic, keeping the center of gravity well down. The front axle is of Timken I-beam section and steering is accomplished by a steering cross tube in compression which protects it from road obstacles. Spring buffers are used in the universals of the steering link. The steering column is of standard design, inclined down to accommodate the peculiar construction of the whole. The frame is of 3 $\frac{1}{2}$ -inch by 1 $\frac{1}{2}$ -inch channel section, motor

type, operated by a one-piece rockershaft whose bearings are integral with the front support of the rear springs. This rockershaft is operated by a short hand lever and transmission being carried on a sub-frame and the whole being well gusseted and ironed to prevent distortion.

THE MATHESON RACER

The Matheson racer which Ralph Mongini will drive, weighs 2,200 pounds, the motor developing 60 horsepower at 1,200 revolutions and having 6 by 6 bore and stroke. The wheel base is 112 $\frac{1}{2}$ inches and the tread 56 inches. Sliding gear transmission is used and the ignition system is make-and-break with magneto. There is a multiple port carburetor and a multiple disk clutch. Truffault-Hartford shock absorbers are fitted and the wheels are equipped with Diamond tires, 34 by 4 inches in front and 34 by 4 $\frac{1}{2}$ in the rear. The engine is regular stock, except that the water pump is friction-driven instead of belt-driven. The cooling fan is in the flywheel instead of the back radiator. The radiator and engine has 8 gallons water capacity. The axles are of the I-beam type. The springs are half elliptic, except shorter than they will be in the 1907 model. The transmission has four speeds and one reverse, selective type. The strut rods carry the emergency brake shoes which are protected from dust by an aluminum shield, and the brakes are applied by wire cable. The brake drums are supported on the rear wheel through the spokes and on the inner rim of the brake drum are mounted the sprocket teeth. All wheels as well as sprocket shafts and transmission shafts are mounted on ball bearings. There is a 30-gallon tank.

FOES AMERICA WILL MEET IN THE FINAL ON OCTOBER 6

Driver	FRANCE Car	H. P.	Entrant
Heath	Panhard	120	Maker
Duray	De Dietrich	120	Maker
Wagner	Darracq	100	Maker
Clement	Clement-Bayard	100	Maker
Shepard	Hotchkiss	130	E. F. Shepard
ITALY			
Lancia	Fiat	120	Maker
Nazzaro	Fiat	120	Maker
Wellschott	Fiat	120	Maker
Fabry	Itala	120	Maker
Cagno	Itala	120	Maker
GERMANY			
Vanderbilt	Mercedes	120	C. L. Charley
Keene	Mercedes	120	Foxhall Keene
Jenatzy	Mercedes	120	Robert Graves

NINETEEN CLEAN SCORES MADE

First Attempt of Kansas City Automobile Club to Promote Endurance Run Proves Success—Twenty-Five Cars Take Part in Affair—Farmers Are Interested

Kansas City, Mo., Sept. 14—Between rows of waving sunflowers, turning their heads idly to the sun, the first annual endurance run of the Kansas City Automobile Club was run last Tuesday. Twenty-five started and nineteen finished with perfect scores. This does not mean that there was sunshine all the way, but where the sunflowers were thickest, there, for some unexplained reason, the roads were dryest. Even with some inclement weather in the form of three or four hard showers to contend with, the cars, all but three, pulled through, with nothing more serious than tire trouble. This was directly responsible for one competitor being penalized two points for being 2 minutes behind the schedule. The schedule for the 95.5 miles was an even 8 hours, divided into controls of 2 hours each. This gave ample time to make necessary repairs en route. Many of the cars suffered from tire trouble, but fortunately most of them went out prepared for such emergencies. Particularly hard luck on the tire question was the fate of W. H. Garland in a Buick, who had to ride into Paola, the noon control, in a farmer's buggy to secure a tire. He finished more than 2 hours late as a result, although he pluckily made repairs and made up hours of lost time.

In a sense, it was wise that so much time was allowed between controls, for the rules served to bring out more starters than there would have been had the restrictions been more rigid. Never has there been a better run in the history of the Kansas City Automobile Club. To begin with, the committee on arrangements understood its business thoroughly and everything went as if by the clock.

There were no delays, no imperfect arrangements. Accommodations and supplies along the route were carefully provided for, so there was no delay or hitch for the contestants on this score. Again, the club gained considerably in membership on account of the interest created by the run. It was partly for this reason that participants were limited to active members of the Kansas City club.

The big surprise of the run and the most lasting impression was the cordiality with which the tourists were received all along the route. Nothing can more clearly demonstrate the feeling of the average progressive farmer of the middle west. The sentiment was not: "We envy you and

hate you because you've got one and I haven't," but rather: "Going to have one some day myself." Throughout the run farmers stood on their porches or lined the fences, cheering the tourists and tossing apples into the tonneaus. Schools were dismissed along the route and the children, waving hands and hats, were another evidence of the general good feeling. When three or four of the first cars had passed and the confetti was well ground into the mud or dust, farmers stationed themselves



ENDURANCE RUN STARTS AT KANSAS CITY

at many of the crossroads to give directions to the motorists. When a car came to grief, if the accident was near a farmhouse, ready hands were there to do whatever there might be in the way of assisting, while a stop of this sort never failed to bring forth its share of provender for the overhungry travelers. A few blasts of the horn were sufficient to give the motorist the whole road, for the farmers, in their efforts to show their good feeling, were not content with giving only half. It is gratifying to note, in view of all this, that there was reported not a single accident to person or animal on the entire run, nor was there a runaway. In speaking of runaways, another feature was noticeable.

Farmers, realizing that motors may be expected in ever-increasing numbers, were ready to train their horses. Hundreds of them, singly and in teams, but unharnessed, were brought to the roadside to familiarize themselves with the appearance and noise of a motor car and many were thoroughly broken of the horsey privilege of shying at automobiles. One farmer, none too sure of his gray mare, had her practically staked out between three large trees and while she showed an inclination to cause an earthquake when the first car passed within 15 feet of her nose, she quieted down after a repetition of the event. Often lookouts in the road gave the warning and father and mother—for in Kansas father works, too—hurried to the barn to bring out the "driving team" for the motor cars. Asked for their reasons

for the friendliness to motorists, the reply was almost universally the same. The farmers see in the automobile the coming of better roads and realize also that the motor vehicles, even on farms as small as quarter sections, are destined to do away with much of the hard farm work which now tries both man and beast. They lost no opportunity of studying the workings of cars if any stopped near their places.

In the towns the receptions were equally cordial. In Paola, the noon stop, the mayor and Commercial Club and other city officials were on hand to see that everybody was well taken care of. The accommodations were excellent and the best of fellowship was shown. Bands were playing while the motorists, after thanking their friendly captors, enjoyed their dinner. Hundreds came from the country around to see the cars enter and leave the control. Never has a party of tourists met a heartier welcome. Paola is a city of 10,000 and in its banks lie deposits of more than \$1,000,000, a record even for prosperous Kansas.

Olathe acquitted itself in like manner. The attorney of the Kansas county in which it is situated wrote the club that he was preparing to establish speed traps, but the business men got together and insisted that the club should not change its route, skirting the city, as had been suggested. As a result, the run was made around the public square, with crowds looking on. Anti-trust gasoline was used on the return trip, when tanks were filled at Paola, for that city has for years been in the possession of an oil refinery and "home brew" was furnished—and there was no advance in prices. Nowhere along the line was any hold-up attempted.

To return to the run. The start was made at The Pasee and Armour boulevard, in Kansas City, and the finish was in

front of the Midland hotel at Van Horn road and Grand avenue. The first car started at 8 o'clock and finished at 5. There were so many perfect scores that the nineteen tired contestants, to whom the decision was left, agreed at a meeting yesterday to award silver medals and to leave the touring cup in the possession of the club. Another run may be held in October of this year. Mrs. B. L. Swofford, the only woman driver in the run, took her car over part of the road herself. Official summary:

- 1—C. C. Meade, Ford, clear score.
- 2—W. S. Hathaway, Buick, clear score.
- 3—George H. Davis, Locomobile, clear score, tire trouble.
- 4—C. F. Ettwein, Aerocar, clear score, tire trouble.
- 5—W. H. Garland, Buick, 216 points, tire trouble.
- 6—C. B. Merrill, Oldsmobile, clear score.
- 7—E. P. Moriarty, Stevens-Duryea, 2 points, tire trouble.
- 8—F. Cowherd, Stevens-Duryea, clear score.
- 10—E. S. Cowle, Haynes, clear score.
- 11—H. T. Fowler, Packard, clear score, tire trouble.
- 12—W. A. Williams, Oldsmobile, clear score.
- 13—C. B. Richards, Jackson, clear score.
- 14—B. E. Nace, White, clear score.
- 17—W. R. Demster, Maxwell, no return, broken axle.
- 18—W. B. Peltzer, Stevens-Duryea, clear score.
- 19—A. F. Seested, Pope-Toledo, clear score, tire trouble.
- 20—B. H. Rule, Stevens-Duryea, clear score.
- 21—C. E. Cook, Pierce, clear score.
- 22—F. H. Thwing, Buick, clear score.
- 24—J. J. Roddy, Winton, clear score.
- 25—Irving Bunker, Mrs. Swofford, Pope-Toledo, clear score.
- 26—W. F. Guthrie, Rambler, clear score.
- 29—F. Woodward, Pope-Toledo, 2 points, went into ditch.
- 30—C. L. Jones, Thomas, no finish, went into ditch, tire trouble.
- 31—J. D. McInnes, Franklin, no return, tire trouble.

PUBLIC NOT IN DANGER

Boston, Sept. 17—A very important decision has been rendered in Natick, Mass., in a case of appeal by Hollis H. Honeywell for over-speeding. Mr. Honeywell testified he saw no persons on the street and only one carriage. The case was given to the jury by Justice Brown and the verdict of not guilty was returned. It is presumed the jury rendered its verdict, owing to the fact that there were no people in the streets and consequently no danger to life or limb. Justice Brown, in his charge, impressed upon the minds of the jury that the new law provided for punishment only when life or property was in danger or traffic disturbed, no matter what the rate of speed. This decision has created a great deal of satisfaction among the motorists of the east, and it is now hoped that the indiscriminate prosecution and persecution by the rural constable will cease. In the town of Sandwich, Mass., three motorists who contested their cases were discharged. The case has a parallel in England, where a similar point was raised by Frederic Coleman, the White steamer agent.

MORE ON FUEL PROBE

Representative Hill Tells Result of His Denatured Alcohol Investigation Abroad

Washington, D. C., Sept. 15—As reported some weeks ago in Motor Age, Commissioner of Internal Revenue Yerkes and Representative Hill went to Europe to make an examination of the working of regulations for free denatured alcohol in Great Britain, France and Germany. Commissioner Yerkes' views were given in a recent issue of Motor Age, and now Representative Hill has come forward with some additional information on the subject. He says that, spurred on by German competition, Great Britain has found it necessary

Representative Hill tells of visiting an extensive establishment near London for denaturing alcohol. On the ground floor were four large iron tanks holding about 2,500 gallons each. On the next floor were twenty-one casks of spirits which had been brought under seal from the bonded warehouse. On the third floor were the wood alcohol tanks, and on the fourth floor cans of methylated materials. On the fourth floor the covers to the wood alcohol tanks were removed—these tank covers were flush with that floor—and the contents gauged and tested. The quantity to be put into the tanks on the first floor was run off through pipes connecting with the first-floor tanks and the upper tanks relocked. Then going to the second floor, each cask of the grain spirit was gauged and tested and the tank covers, which were flush with the floor, were removed and the casks of the grain spirit were run into the tanks below. The mixture was then stirred with long-handled wooden paddles and the tank covers replaced, and the material was ready for sale free of tax. The mixture was 10 per cent wood alcohol and 90 per cent ethyl alcohol made from molasses, and was what is known as the ordinary methylated spirit used for manufacturing purposes only and used under bond. The completely denatured spirit is made by adding to the foregoing three-eighths of 1 per cent of benzine.

Mr. Hill said one of the professors at the institution in Germany, known as the Institution of the Association of United Alcohol Manufacturers, which is operated and maintained for educational purposes at the expense of the trust, referring to the statement prevalent in America that the use of alcohol in the internal explosion engine resulted in the corrosion of the metal, remarked that that was nonsense, and immediately took Mr. Hill into a distillery where a large engine had been in continuous use with alcohol for the past 6 years. He admitted, however, that they had not fully overcome the difficulties with regard to the use of alcohol in the high-speed automobile, but expressed entire confidence that it would only be a short time before that would be accomplished.

RACE FOR LIGHT CARS

Palermo, Sept. 5—The Sicilian circuit for light cars and runabouts organized by Chevallier Florio was raced yesterday. The distance was 150 miles between Palermo and Petrolea and return. The power of the cars entering was limited to 10 horsepower. The result was a win for an 8-horsepower de Dion car in 7 hours 25 minutes—driven by Florio himself. The second and third cars were also de Dions.



AT PAOLA—KANSAS CITY RUN

to make much more liberal provision for the use of free alcohol than heretofore. Where a 10 per cent denaturant had been used formerly, only 5 per cent will hereafter be used, thus materially reducing the cost. Besides that, the cost of supervision, which has heretofore been thrown upon the consumer, will, under the terms of the bill, be hereafter paid wholly by the British government. The investigators also found that Australia had taken the matter up and that every probability exists for a law being passed similar to that adopted by the American congress at its last session. France is paying a bounty of 5 cents a gallon on all completely denatured spirit that is turned out in that country.



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AMERICA IN THE LEAD



AFTER the 1907 cars have been presented to the public at the forthcoming automobile shows it will have been seen that American makers have departed to a great extent from accepted rules of design, as followed most closely by manufacturers abroad, and that as a result the American maker has not only exercised more ingenuity but the foreign makers have practically stood still for a year or more. The French maker is more given to following accepted lines than the makers of other countries, though he makes little improvements and pays particular attention to working out details, which have been responsible to a large extent for the reputation he has earned for doing good work. The American maker is an inventive sort of a person—a genius, in fact—and to him we naturally look for the great changes that are to take place in motor car design within the next decade. It is pretty safe to assert the American is responsible for greater novelty in design than the makers of any other country, and, this being the case, it is only natural the American will prove the one to be responsible for the rapid advancement that is to take place in the automobile manufacturing world. The American had not, up to a few years ago, given as close attention to detail as he should have done or as the French maker was wont to do, but the past few years have seen great changes in this direction, so that with the home maker watching details and at the same time showing the world something new from week to week it is not astonishing this country should show that progress which has put America pretty well ahead in most all lines of manufacture and most all commercial lines. It is naturally gratifying that the home makers are devoting attention to care in turning out their products, for they have a hard competitor in this particular matter, and it was the excellent work the French put in their products that compelled American makers to look up, take notice and adopt methods that would assure the manufacture of the best goods. England should not by any means be overlooked when progress is to be taken into consideration, for she has fairly outstripped France in the matter of cleverness in design and is today giving her friend across the channel a terrific race

for continental supremacy. Italy, too, is not to be rated as a tail-end—she is a leader, although her factories are comparatively few in number. But notwithstanding the cleverness of the English, the French, the Germans and the Italians, this country may be reckoned upon to give the world the advancement the world expects in automobile design.


TIME, PLACE, CONDITIONS



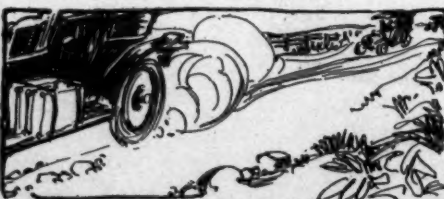
MOTOR AGE has all along contended that time, place and conditions should govern in all matters pertaining to the regulation of the motor car on public highways. Notwithstanding these views it has advocated obedience to the laws, whether right or wrong, for laws are made to be obeyed; if they are not right they should be made invalid only through the medium of the court that has power to decide upon their legality. Some months ago a case came before the English courts wherein a motorist contended that the matter of speed had no bearing on the case inasmuch as there was no property and no people on the highway to be endangered through excessive speed on his part. In this contention he was supported by the court and was discharged. A similar case has just been decided in Massachusetts which must have an important bearing on future decisions and on future legislation. A motorist, Honeywell, proved that there were no people and but one horse on the street at the time he was alleged to have violated the speed law. There was a jury trial and Justice Brown, who instructed the jury, impressed upon the jurors that the new law provided for punishment only when life or property was in danger or traffic disturbed, no matter what the rate of speed. The result was the motorist was promptly discharged. Another case in Massachusetts, wherein three motorists had been arrested, fell through as a result of similar contention. Such decisions as have been made are but reasonable and what may be expected to influence motor car legislation, not only in this country but all

over the world, when the automobile has become better known and more appreciated by the public. The two decisions referred to are not the only ones of a similar nature, but they ought to form the basis of defense in all cases where situations are similar. Indiscriminate dealing out fines called justice cannot stand and ought to be fought to a bitter end, not only by motoring organizations but by individuals, using the argument that time, place and conditions ought to govern all decisions. An appeal costs little, it usually brings justice, and it will at least be the means of determining the motorist's rights in the use of the highways—rights that up to this time have been only partially accorded.

RACE OF AMERICANS



SATURDAY of this week will see the finish of what may be considered the first real contest of American racing cars, for it must be remembered the two previous eliminating trials for the Vanderbilt cup and the trials to select American representatives for the Bennett cup race were of a farcical nature. The event to be contested on Long Island this week is a genuine road race between genuine American racing cars, built for a purpose and with the same idea that foreigners have had when entering such contests—that of building racing cars that can win. If America has been a little slow in the matter of building road racing cars in earnest, it has awakened and gone into the matter with open eyes and after much thought and expense. America may not win the cup, but it will make a better showing than it has ever done and it will have learned more this year about fast automobiles than it ever knew before. Those who have gone into the game did not do so purely from selfish motives; what little chance they have to profit by the race is well-nigh lost by the odds against them, so that there must be some true sporting blood left after all. The American ought to feel quite as much interest in the contest between his own people as that between the representatives of the several countries who will meet on October 6, for the American is more interested now in American-made cars than he is in those made abroad. The true American could only find more interest in the big race in the loyalty he feels for Yankee products.





THAT THOMAS CAR WHICH
IS REPORTED SO FAST
SHOULD CARRY AN ANCHOR!

GEE! -
I'D LIKE
A BITE!

FIVE SHOTS
FOR YOUR
UNCLE - !

HIRAM-YOO
KIN PUT
THET ER
PIG IN THE
GARAGE
TONIGHT!

HUH!
-!

ON THE
"JERICHO PIKE"

FILTHY LUKE

MANUFACTURER

SEND OUT THE CHICAGO BLANKS

Managers of Windy City Show Ready to Talk to Prospective Exhibitors—All Applications Must Be Handed In By October 1—Grand Central Palace Gossip

New York, Sept. 17—Application blanks for space at the Chicago show and diagrams for all of the sections will be mailed to the trade this week. All applications will close on Monday, October 1, and the allotment will be made on October 3 and 4. The date of the show will be February 2-9. The show will, as heretofore, open at 2 p. m. on the opening day and 10 a. m. thereafter, and will close at 10 p. m. daily. The entire gallery of the coliseum and as much of the second floor of the coliseum annex as may be needed will be allotted to the members of the Motor and Accessory Manufacturers. Members of the National Association of Automobile Manufacturers will be allotted space on October 3. The members will be entitled to attend the meeting and draw for the order of selection, and on completion of the drawing will select space in their proper order. The amount of space to which each will be entitled will be determined by the management in advance. The remaining space will be allotted to other exhibitors on October 4, the same method of allotment being followed. The space set aside for the Motor and Accessory Manufacturers will be allotted by a committee of that organization on October 3. Applications by members of the Motor and Accessory Manufacturers will be mailed to D. J. Post, president, Hartford, Conn., and all other applications to S. A. Miles, manager, 7 East Forty-second street, New York. The rules provide that no application may be considered in the first allotment unless received by noon October 1. The exhibition will be open only to those who have not, since September 1, 1904, taken part in a show which has not been sanctioned by the National Association of Automobile Manufacturers. The show will take place at the coliseum and First regiment armory, as was the case last year.

Many applications for space in the Grand Central palace show, December 1 to 8, are being received by S. M. Butler, secretary of the Automobile Club of America. Mr. Butler states he has had applications for space from all parts of the world, a recent request for a reservation coming from Italy. The diagram, contracts and other literature for the show have been printed and have been mailed to the trade. Mr. Butler says in the correspondence received are the most enthusiastic favorable comments on the early date for the show. He says there seems to be a universal belief that the early dates are the proper dates for a show.

In sending out his space diagrams, Secretary Butler says: "The whole of the main floor and part of the gallery floor

will be devoted to the exhibition of automobiles. Each exhibitor will be required to exhibit all the vehicles described in his application; should he fail in this and his space remain vacant, the committee may at any time after the opening hour allot his space to the applicant next in order; but this clause shall not be construed as affecting the obligation of the exhibitor to pay the full amount of the rental agreed upon in case the exhibition committee shall not so re-allot the space. The committee reserves the right to prohibit the exhibition of more than one sample of any model. The main gallery, the Lexington avenue front, the Forty-third street side of the gallery floor, and the Lexington avenue end of the visitors' gallery on the third floor, will be devoted to the exhibition of parts and accessories. The allotment will be made by the exhibition committee of the Automobile Club of America. All applications received up to Monday, October 15, will have equal consideration. Later applicants will be given consideration after the first allotment has taken place. No exhibitor will be permitted to sublet the whole or any part of the space rented by him or to allow to be exhibited therein any other articles than those manufactured or sold by him. It is understood and agreed that the net profits of the show, over and above expenses, shall be divided as follows: One-half to the exhibitors in proportion to the amount of space rental paid by each; one-half to the Automobile Club of America's exhibition fund. The committee reserves the right to decline or prohibit any exhibit, exhibitor or proposed exhibit which in its opinion is not suitable for an automobile exhibition. This reservation concerns persons, things, conduct, printed matter, souvenirs, catalogues and all things which affect the character of the exhibition. Exhibitors have the right to distribute catalogues, souvenirs, and other matter approved by the committee, from the space occupied by them, but in no other way. Exhibits will be received at the Grand Central palace, Forty-third street entrance, on and after Wednesday, November 28. It is expected that all exhibitors will arrange their stands on Friday and Saturday, November 30 and December 1, and have their exhibits ready for the private view by the members of the Automobile Club of America and their guests at 3 p. m. on Saturday, December 1, and for the public by 6 p. m. on the same day. No exhibits will be received after the latter hour. To insure uniformity, decorations and signs for all exhibition spaces will be furnished by the of-

ficial decorator, to be paid for by each individual exhibitor at the time of the payment for his space. No other decorations or signs will be allowed. These decorations will consist of denim floor covering with suitable mouldings; use of iron railings for division of spaces; signs with row of electric lights across top, including current for 7 days of 7 hours; background coverings, draperies, etc., where required, all textile fabrics being fireproofed; to be charged for at a uniform rate of 40 cents per square foot of floor space.

"All exhibits must be plainly marked with the name of the consignor and the number or letter of his space and addressed to the Grand Central palace, New York city, and will be received at the Forty-third street entrance, where there will be on duty a receiving clerk, who will immediately send notice of the arrival of the exhibit to its designated space; but under no circumstances will exhibits be received on which there are charges of any kind, nor will exhibits be permitted to be placed in the exhibition spaces until all payments for rental of space and decorations have been made. A space will be assigned on the seventh floor for each exhibitor, for the storage of goods, cases and other material connected with their exhibits. A force of laborers will be furnished by the committee and can be employed by exhibitors upon application, at a reasonable fixed price. Once in place all exhibits must remain until the close of the exhibition, unless the permission of the exhibition committee is obtained for their removal."

CHICAGO PARTS SHOW

Chicago, Sept. 19—Promoter Andrews announced today that there will be at least seventy concerns exhibiting in the parts and accessories' show, which will open in the First regiment armory Saturday. The list, however, has not closed, Mr. Andrews deciding to receive applications up to the time the building is thrown open to the public. He expects to have in line many prominent houses and to show everything in the line. Arrangements have been made for the attendance of the local clubs. Next Wednesday night the Chicago Automobile Club will have an inning, Thursday night the Austin Automobile Club gets in line and Friday night is given over to the dealers. On Saturday night the chauffeur will be king and an attempt will be made to decide by vote who is the most popular chauffeur in Chicago.

QUAKERS TAKE SHOW ACTION

Philadelphia, Sept. 17—The Quaker City has felt the effect of the "early show" question. At noon on Thursday last a score of the more prominent agents and branch managers met and formed an organization called the Philadelphia Automobile Show Association. While independent of the local trade organizations now in existence, the new association embraces all the factions which have hitherto pre-

vented unity of action when a show was to be held, and the 1907 affair will in consequence be the most comprehensive ever held in this city.

This early move in the matter of preparing for a local show was rendered necessary by the change in dates decided upon for the national shows, and Philadelphia's exhibition will in all likelihood follow shortly after the Madison Square garden show—say, January 26 to February 2. Chester I. Campbell, of Boston, in all probability will be selected to manage the 1907 show. After the temporary organization, Percy L. Neel, president of the Quaker City Automobile Co., was elected president of the show association, and he immediately appointed a show committee consisting of W. J. Foss, of Foss & Hughes; W. Wayne Davis, of the Keystone Motor Co., and W. F. Smith.

Auvergne Circuit on

Paris, Sept. 7—Forty-six cars and three motor cycles were entered for the Auvergne circuit, of which thirty-three were four-cylinder cars, divided into three classes, according to cylinder capacity. That class of four-cylinder cars weighing about a ton and delivering 45 horsepower had the most numerous entries—seventeen. Thirty-two cars started over the first stage of 125 miles on the difficult and tortuous Auvergne roads. The weather was hot, dusty and trying in the extreme, with a brilliant sun. The meeting, however, was a great success. The best time of the day was made by Rigoly in a 60-horsepower Gobron car, weighing 4,400 pounds. His average was 35 miles per hour. In the smaller class of four-cylinders, the Rochet-Schneider and Berliet cars were neck and neck. Darraeq came in well with a type of motor cab which he will push commercially for 1907. Gobron cars made the best times with 3 hours 21 minutes and 3 hours 37 minutes. The second and third stages were repetitions of the first and the first five cars in the list are all Gobron make.

Trying Oil Cure

Kansas City, Mo., Sept. 14—The Kansas City park board has decided to try the experiment of sprinkling the city boulevards with crude oil, and more than a mile of roadway has been so treated. Residuum from the refineries is being used at a cost of about 5 cents a yard on the pavement. Two coats are applied, an ordinary sprinkling cart being used. The cost of maintenance of the parkways, especially those on grades, has been high, owing to the natural tendency of the macadam to wash, and if the oil will hold the road sufficiently to necessitate extensive repairs after each heavy rain the item of maintenance, it is estimated, will be reduced from 25 to 50 per cent. Some complaint has been made by residents along the boulevards because the oil, they assert, ruins their furniture.

DENVER HAS ITS CLIMB

Twenty-Six Cars Compete in Eleven Events, Steamer Making the Fastest Time

Denver, Sept. 16—Twenty-six cars, divided into eleven classes, competed in a hill-climb yesterday up an incline near Fort Logan under the auspices of the Colorado Automobile Club. The distance was 2,200 feet, the highest grade 12 per cent and the average 8 per cent. The contestants were allowed only 75 yards in which to start and a telephone system of timing was used. F. C. Goff's Stanley steamer, driven by George Hering, made the fastest time of all—43 seconds. T. Daly's Stevens-Duryea was second in :46, and B. B. Brown's Pierce third in :54. E. L. Mathewson drove in five of the events, winning three of them. Summary:

Class B, for gasoline cars not exceeding 16 horsepower—Won by A. T. Wilson, 15-horsepower Ford; time, 1:40½.

Class C, for gasoline cars not exceeding 22 horsepower—Won by G. E. Hannan, 22-horsepower Jackson; time, 1:11½. Charles Bilz, 20-horsepower Franklin, and G. A. Maxwell, 20-horsepower Stevens-Duryea, tied for second; time, 1:17½.

Class D, for gasoline cars not exceeding 30 horsepower—Won by E. L. Mathewson, 26-28-horsepower Oldsmobile; time, 1:03½; R. W. Smith, 24-horsepower Smith, second; time, 1:15½. G. E. Hannan, 22-horsepower Jackson, third; time, 1:55½.

Class E, for gasoline cars not exceeding 50 horsepower—Won by G. A. Maxwell, 50-horsepower Stevens-Duryea; time, :46. Frank Botterill, 40-45-horsepower Pierce, and E. L. Mathewson, 50-horsepower Thomas, tied for second; time, :54½.

Class 1, for gasoline cars costing not over \$1,000—Won by C. V. Dasey, 14-18-horsepower Mitchell; time, 1:24½. A. T. Wilson, 15-horsepower Ford, second; time, 1:37.

Class 3, for gasoline cars costing not over \$2,500—Won by E. L. Mathewson, 26-28-horsepower Oldsmobile; time, 1:01½. R. W. Smith, 24-horsepower Smith, second; time, 1:12½. G. E. Hannan, 45-horsepower Jackson, third; time, 1:14½. J. C. Wesson, 30-horsepower Mitchell, fourth; time, 1:16.

Class 4, for gasoline cars costing not over \$3,500—Won by E. L. Mathewson, 50-horsepower Thomas; time, :54. Dr. F. E. Neres, 50-horsepower Thomas, second; time, 1:04.

Class 5, for gasoline cars costing not over \$5,000—Won by G. A. Maxwell, 50-horsepower Stevens-Duryea; time, :47. Frank Botterill, 40-45-horsepower Pierce, second; time, :54½. E. L. Mathewson, 50-horsepower Thomas, third; time, :54½.

Class 6, for steam cars any price or power—Won by George Hering, 20-horsepower Stanley steamer; time, :43.

Class 7, for electric cars any price or power—Won by O. P. Fritchle; time, 1:38½.

Class 8, for cars running on high gear only from tape to tape—Won by A. T. Wilson, 15-horsepower Ford; time, 1:48½. G. E. Hannan, 22-horsepower Jackson, second; time, 1:57.

Denver, in promoting this climb, emulated Chicago in being original. Its effort consisted in first classifying the cars according to horsepower, then redividing them into new fields according to price. It also had a card that included three types—gasoline, steam and electricity. There was only one electric, a Fritchle, that tried the climb, and also surprised many by the ease with which it went up the grade. It scrambled up in fine shape, beating in point of time several of the

gasoline machines. Another novelty was the high gear climb, which, however, drew out only two cars, which performed the stunt without any apparent difficulty. The hill itself was none too good. It was a rough road, rising and falling like the billows of an ocean, the start being made around a heavy curve over the tracks of the horse-car line, which runs from Orchard place to Fort Logan. A heavy gale was blowing in the faces of the contestants, so the 43 seconds made by the Stanley steamer is considered remarkably good. Those in charge of the climb consisted of President F. L. Bartlett, Secretary W. H. Bergtold, Chairman M. J. Patterson, Judge D. W. Brunton, Marshals J. W. O'Connor and C. A. Seymour, Clerk of Course W. A. Beck, Starter F. L. McFarland, Electrician C. A. Yont and Timer J. J. Flint.

Long Motor Cycle Run

Chicago, Sept. 17—Twelve of the twenty-three starters survived in the first annual 300-mile endurance run of the Chicago Motor Cycle Club contested Saturday and Sunday. The first day's run was over the Elgin-Aurora century course to Waukegan and yesterday the riders went from Waukegan to Milwaukee and back to Chicago. G. W. Lyon and Ralph Spordeder on Harley Davidsons, Edward Buffum, A. B. Coffman and S. J. Chubbuck on Yale-Californias, A. G. McCullum and M. H. Mills on Armaes, J. S. Woodworth on a Curtiss, J. G. Turner on a Landgraf, C. W. Van Sickle on an Indian, Charles Blankenheim on a Torpedo and D. D. Morin on a Merkel were the survivors with perfect scores. At each city was a control and the contest was centered on making each control on schedule time. At the first night's stop, Waukegan, nineteen arrived, with thirteen having perfect scores. One of the features of the contest was the work of Charles W. Price in a 10-horsepower Maxwell runabout. Price left each control after the motor cyclists and every time beat them to the next place. He made the 300 miles without the least suspicion of trouble.

Talk Road Building

Chillicothe, Mo., Sept. 14—The Missouri state good roads convention decided to hold its next meeting in the winter of 1906-07 when the state legislature is in session. The meeting will be called for Jefferson City, the state capital. While no permanent organization was effected, there gathered delegates, many of them officials, from more than fifty of the 114 counties in the state. All were agreed on the vital point that the state must have better roads and more of them. Some object lessons were given in road building and the display of road machinery was large. A. N. Johnson, highway engineer of Illinois, outlined the satisfactory workings of the road system in that state, although in operation only a year. Much of his address he devoted to dirt roads.

THE REALM OF THE COMMERCIAL CAR

A MOTORING AGRICULTURAL CONQUEST



YESTERDAY

NO LONGER will the horse rule the farm. The days when he can look around, and, in the language of Alexander Selkirk, exclaim "I am monarch of all I survey," are fast drawing to a close. In the agricultural sky is seen the small cloud no greater than the human hand that soon will be the ruling force of farm life. The gasoline, alcohol or paraffin motor is the hand. Motor cars and motor wagons have been the knights of the road, the former the greyhound of the highway, the latter a literal Samson of the freight and commercial realm, but a change is at hand. The gasoline motor has been harnessed to the time-honored plow, no longer do lordly Dobbins cut the golden grain; the days of the scythe and sickle in the hay fields are dreams of yesterday; the three score and ten years of the ponderous traction engine as a vehicle of burden in farm work are drawing to an end and the steam engine for threshing grain, grinding corn, cutting straw and performing the myriad other farm labors will soon be but history in the role of rural vocations.

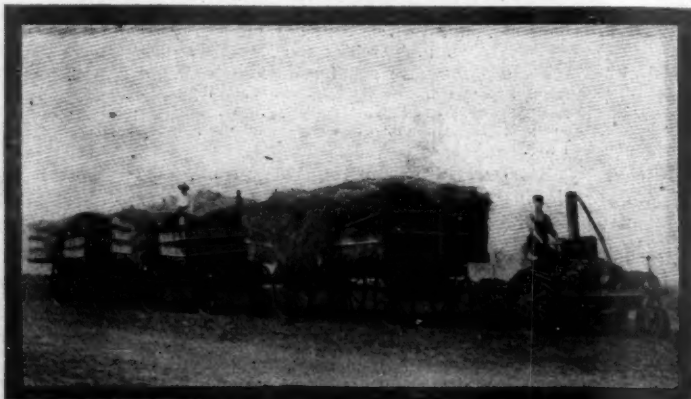
Agricultural motors are the usurpers of every avenue of work on the virgin soil. These motors are not touring automobiles, without seven-passenger bodies with king of the Belgians curves or London tops; they are not racing monsters capable of 2 miles a minute; neither are they cumbrous trucks or delivery wagons with shorter wheelbases or minus carrying platforms and bodies; rather they are agricultural motors—motors built expressly for work on soft farm lands as well as for slow travel on stone roads from the farm to the freight depot and return. Agricultural motors were not originally built by taking an



TOMORROW

IVEL BOWS TO AMERICA

automobile truck and changing its wheels, shortening its wheelbase and calling it a farm motor. The originator of them started on a new line, building a little pulling machine that on soft soil would haul a three-furrow plow; that in the depth of winter would grind grain; that in the harvest would draw a couple of self-binders for cutting the grain; that in the early summer would cultivate the acres of vineyards; and, at all other seasons of the year, could be employed in drawing wheat to the railroad station, sawing wood, cutting straw, churning butter, pumping water, planting potatoes, cultivating sugar plantations, spraying fruit trees and shrubs, logging in the forest, breaking stones, rolling land, and, in brief, doing every work in which the horse at present figures supreme. In building a machine to perform these varied duties the inventor departed from accepted lines of motor car or motor truck construction.



IVEL PULLS THREE WAGONS IN MANITOBA.



TODAY

Pneumatic or solid rubber tires were cast aside; three or four speed and reverse change speed gear sets were similarly discarded, and speeds of 12 and 15 miles per hour were not attempted, the inventor being content with 5 miles per hour in the harvest field, but coupled with this is tractive force to pull 7-ton loads.

Where are these agricultural motors used at present? The vast wheat fields of Kansas have never known them, neither have the endless vineyards of California, neither have the long stretches of the Dakotas, and in the gardens of New England they are as yet foreign. True, the United States claims little acquaintance with these little Samsons, yet none the less they are in use and, since 1902, have been performing wonders. England is their home land. Back in 1902 the first one appeared and contested with horses and traction engines in such farm occupations as plowing, cutting hay, harvesting grain, cultivating hops, drawing loads on the road, running threshing machines, rolling land and a score of other duties. In every case the horse and the steam engine were vanquished. The little gasoline motor showed it could do the work of half a dozen horses, that it did more work and at half the cost of traction engines. Since these

May days of 1902 the agricultural motor has progressed and now is in active use in over thirty countries of the globe. On the veldt of South Africa it has for 3 years endured the intense heat by day and the freezing chill of the starry night—conditions destructive of horse life; India has acknowledged its prowess on the foothills of the Himalaya mountains and along the valley of the Ganges; dyke-girt Holland and Belgium have used them for a couple of seasons; in the Philippine

islands a few do daily service; Australia and New Zealand see them cultivating the hot lands where horses endure but a matter of weeks and months; Russia, with her vast Siberian wheat fields, watches the operation of half a score of them tilling land in fields that measure their area in square miles; Portugal and Spain know them in their vineyards; in France, grape culture has been made more valuable because of their presence; beneath the Sultan's crescent a few have supplanted the 'woman at the plow'; Egypt, in the Nile valley, where water cannot be obtained for the horses and where the heat is too excessive for them, has used the agricultural motor for three seasons; Algeria, Morocco, Tunis, the Straits Settlements, and many other Asiatic and European nations have adopted them. But we cannot stop here. In June of this year patent rights for manufacturing one make of agricultural motors in the United States were sold to a large manufacturing firm and already the building of them is under way. The patent rights for building this same machine in Canada were sold to Richard A. Taunton, in the McIntyre block, Winnipeg, Man., who also holds the American privileges. Already a factory is under way. In Canada, for the past season, the agricultural motor has been operating daily with commendable results. Already manufacturers in this country are becoming interested and the coming season will see several of them introduced. In Cuba for 18 months one has worked constantly on a sugar plantation and more are ordered. In short, there is not a nation but what is gradually becoming interested in them.

The leading agricultural motor, and the one to which all previous references apply, is the Ivel, an English product, built by the Ivel Agricultural Motors, Ltd., of 45 Great Marlborough street, London, Eng. Dan Alborne, the inventor, conceived his ideas of hitching the gasoline motor to



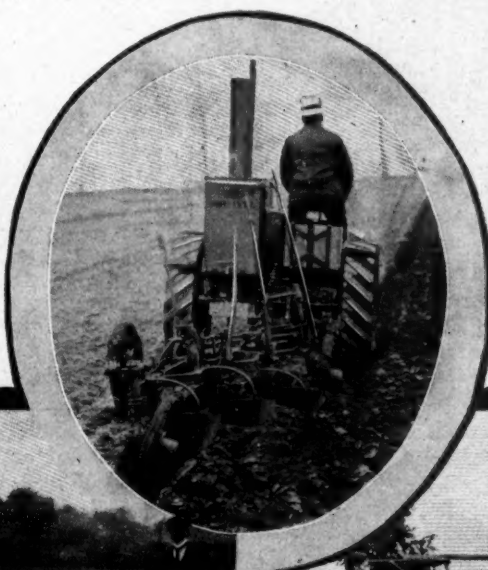
THE GASOLINE IVEL SUPERCEDES STEAM IN THRESHING

the plow in the opening year of the century and soon afterwards the Ivel, possessing many of its present features, appeared. At first nothing but skepticism greeted it. Farmers averred it would sink out of sight in the soft fields to be plowed in the early spring; others predicted for it a like fate with the traction engine, which had proven too heavy, slow and cumbersome for farm work; and not a few jeered it with such epithets as "need a force of expert mechanics to keep it in running order." The proof of the pudding is in the eating, and on this score the Ivel has made good. On the weight question the 3,000 pounds that it weighs is distributed over three wheels, each shod with 9-inch tires, and records from the daily press of England show that on soft, damp soil it does not sink too deep to cause delay or injure the soil. Compared with the traction engine, weigh-

ing 6 tons, it is a mere pigmy and yet, when it comes to pulling, it has the tractive force owing to broad tires, with angular or cross-gripping plates. In maneuvering it turns round in less space than a team of horses—thanks for this to its three wheels with a single one in front for steering—and in starting and stopping it is a good equal of the present day motor car.

In describing the Ivel agricultural motor attention is first called to its exterior appearance, in which it is triangular in shape with the

apex to the front and the base to the rear. Carrying the front end is a steering wheel 20 inches in diameter with a 9-inch tire, and to prevent side slipping the tire has a central ridge, generally made of solid rubber. Supporting each of the rear corners of the triangle is a driving wheel, much like those used on a traction engine, each with a 40-inch diameter and a 9-inch flat steel tire with gripping catches. The remainder is a flat steel housing enclosing all of the machinery from the dust which is so present in farm vocations. Protruding from one side of the casing is one end of the motorshaft, which carries a broad pulley. When not used for drawing, or any mobile work, the motor can be disconnected from the driving wheels and threshing machines driven from this pulley. In the exterior view also appears the method of steering. The front wheel is carried on a vertical steering post with a yoke on the lower end spanning the top half of the steering wheel. On the top of the steering post is a small sprocket, from which a chain passes to another sprocket carried on the vertical steering column at the back of the machine. The driver steers through a hand wheel, exactly as in any commercial vehicles, and to be exceptionally motor-like the spark and throttle levers for governing the engine speed are carried on the top of the steering wheel. In the present Ivels the back driving wheels are carried



IVEL HANDLES THREE-FURROW PLOW EASILY IN SOFT LANDS

IVEL DRAWS TWO 6-FOOT SELF-BINDERS CUTTING HEAVY WHEAT

outside of the main frame, but they were originally placed inside of the side pieces of the frame. With the wheels outside the danger of striking against trees, stones, hedges and other objects was paramount. The framework is of steel throughout, the channel side pieces being narrowed gradually toward the front where they practically meet, giving the frame a decidedly triangular shape. The engine is of the two-cylinder horizontal opposed type, made in different sizes, one with 5½-inch bore and a 5-inch stroke, having a rating of 14-horsepower, at 900 revolutions per minute. Automatic inlet valves are used and the exhausts are operated from a half-time camshaft. Ignition is by jump spark system with current coming from batteries and control of the spark through steering wheel lever. To facilitate the motor as much as possible, a thermo-syphon system of water circulation is used, the water supply being taken from a large

trary to custom on this class of machine, a transmission giving but one speed and reverse is used. The crankshaft is carried parallel with the back axle and being extended on one side carries a pair of 18-inch female cone clutches which revolve loosely upon it. These clutches are so located that the two male cones bolted to a sleeve rigid on the crankshaft can be brought into engagement with either halves or left in the neutral position. They are operated by a lever. Reverse is obtained by a gear wheel bolted to the second female clutch which meshes with a large gear wheel bolted to the countershaft. Power is transmitted from the crankshaft to the countershaft by chain and from the countershaft to the center of the rear axle by a similar chain.

On the right side of the tractor is a winch which serves for extricating the machine from soft places by use of cable and anchor posts, and on the other side is



WORKING A STONE CRUSHER

performer, of European origin and the conditions there are not the same as those met in rural America, yet the figures, the nature of the soil and the cost of labor are sufficient to give us data for judging as to the success of them in America. The Ivel, a 14-horsepower gasoline product, drives a 5-foot threshing machine equally as well as a steam engine at a great sav-



IVEL PULLING DEERING 6-FOOT SELF-BINDER IN BOUNDLESS WHEAT FIELDS OF MANITOBA LAST YEAR

tank of sufficient size to allow the motor to run for an entire day without replenishing. Control of the motor speed is by governor, assisted by an auxiliary carburetor throttle, control of which is from the steering wheel. Motor bearings receive their lubricant through separate leads from a positive oil pump, but on all other bearings are compression grease cups. Con-

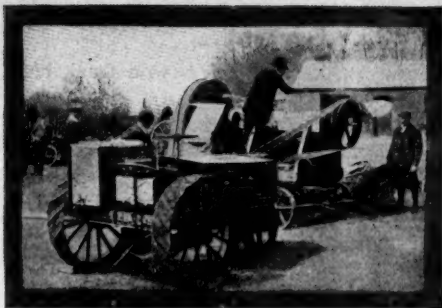
a large pulley to which the belt is attached when the motor is required to operate a threshing machine, straw cutter, grinding machine or other implement. Owing to its exceptionally short wheelbase its turning abilities are nothing short of marvelous, and owing to this two plows can be used when necessary, both of them turning on corresponding curves.

Before passing to a separate observation of the construction of the other agricultural motors now in use, it is essential to look at the amount of work done by one of these Ivels, note the expense incurred during the operation, compare the amount of work done with that previously accomplished by horse-drawn implements, and finally discover if the saving in dollars and cents as well as in time is sufficient to warrant the introduction of this unique power for farm work, and so warrant a description of the leading machines. These performances are,

ing and cost. Further, it hauls the threshing machine from one farm to another, pulling it over the bridges above the railroad tracks with ease, and finally backing it into position beside the stacks, with equal facility. It successfully cultivates the land crosswise of the plowing and cuts straw with a 5-knife cutter at half the cost required by a steam engine, giving an actual saving each day of \$1.90. When working upon the farm two men are employed, one for operating it, and who sits on a single seat at the rear, and a second, who rides on the plows, harrows, seed drills or attends to the other implement run by it. For a couple of seasons it has operated daily, with the exception of a half-day each 2 weeks needed for overhauling. When engaged in daily plowing it consumes 12 gallons of gasoline per day, which in America would cost in quantities 10 cents a gallon or \$1.80 per day for fuel, a small cost when compared



HARVESTING AT NIGHT



RUNNING THE STRAW CUTTER

with the price of provender for a team of horses for 1 day in Illinois or New York state. If cutting straw, this consumption falls to 8 gallons per day, and when driving a threshing machine it is increased to 14. In the other roles a like ratio of fuel consumption rules.

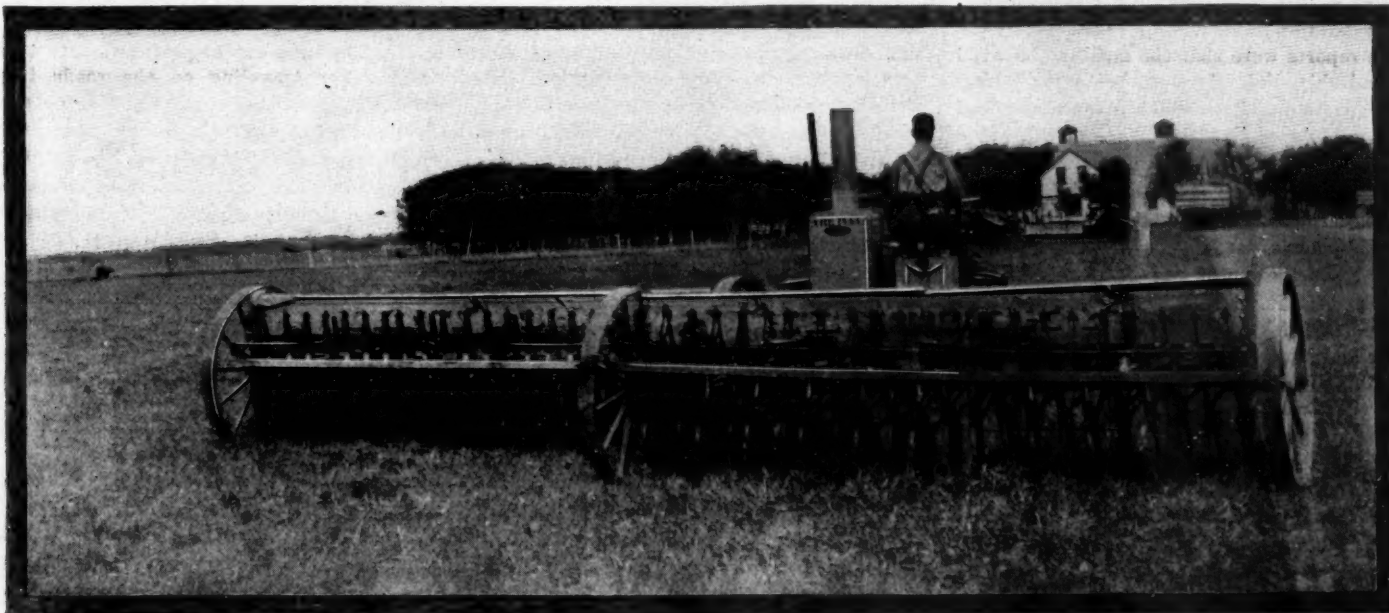
In plowing, the Ivel motor replaces nine horses, drawing, as it does, a group of

using the steam tractor the cost of the plowing was \$6.48, to which had to be added \$2.70 for carting coal and water, giving a total of \$9.18, or \$4.08 per acre. The Ivel tractor's expenses were \$1.08 per driver, 60 cents for plowmen, 24 cents for lubricating oil, and \$2.52 for gasoline, giving a total of \$4.44, or \$1.97 per acre. From these it can be seen that the cost of steam is greatest, being \$4.08; that for horse labor, \$3.68, and the gasoline motor, the cheapest by far, at \$1.97, being little more than half the cost of the horse labor.

It is of passing interest to note that the little Ivel, besides pulling the plows, has during its brief existence pulled behind it the largest size combined reaping and binding machinery; has pulled two 6-foot mowing machines, cutting 15 acres of hay in 3 hours 35 minutes; has when used as a tractor on the road drawn two trailers loaded with 1,500 bricks, a total weight of 5½ tons, and delivered the same at a

they can be handled and put into position compared with that of the heavy steam engine or the horse-drawn implements. On one occasion the motor was run into position and belted to a straw cutter and had a bag of chaff cut while the traction engine was being put into line with the straw cutter. A marked advantage of it is that the motor can be run equally well on gasoline or alcohol and experiments are being conducted with the hope that carbureters permitting of the use of kerosene will be adapted.

The Ivel used in Cuba has an interesting life story, particularly in that conditions there are very different from most of the fields in which it operates. It was in early April, 1905, that Sr. Victor Mendoza, the Cuban agent, delivered the first Ivel to Sr. Jose Goncer, of Julia, an 18-horsepower machine. By July 1 the machine was well climatized to the island and had the honor of being the pioneer



IN MANITOBA THE IVEL IN SPRINGTIME DRAWS A COUPLE OF THE LARGEST SIZED SEED DRILLS

three plows, whereas a three-horse team rarely pulls more than two plows and moves at a much slower rate than the motor. In this way the nine horses at \$1.98 a day each, three plowmen at \$2.16 a day, and three boys at 72 cents a day have been dispensed with. These figures are based on actual cases where the soil worked was very heavy and three horses with man and boy were required in plowing a ¼-acre tract a day. In the same soil and on the same day the Ivel motor plowed 2¼ acres with a double-furrow plow, which turned furrows 9 inches wide and 6 inches deep.

Actual tests were made in plowing 2¼ acres of land by horses, by a steam tractor and by the Ivel gasoline motor. With the nine horses the cost for the work was \$5.40, and added to this were the wages of the three men, \$2.16 each, and three boys, 72 cents each, making a total of \$8.28, or a cost of \$3.68 per acre. In

point 7 miles distant in 1½ hours. Other agricultural performances are the cultivation of vineyards, and general farm use, one farmer using it to operate his saw mill when the water in the river was too low to operate his dynamo, another using it for driving a stone cracker, a third for sawing firewood and a fourth for drawing stones. One Belgian farmer, during July, used one for cutting 100 acres of wheat, during which work the motor never stopped once, averaging for the work as high as 9 acres every 6 hours.

In particular cases special designs are made, which are, of course, intended for special work. For example, some are made for plowing the depth of 11½ inches with a three-furrow plow, whereas others are used for 6-inch plows, the latter having a rating of 10 horsepower, whereas the former motor is capable of generating 18. Not the least advantageous feature of these little Ivels is the speed with which

motor-propelled agricultural device in the West Indies. Sr. Goncer's idea of sugar cane cultivation is that it needs all of the cultivation possible, and to give it this with the old-time oxen was too expensive. In motor fashion he hitched to his new Ivel a nine-toothed Planet Jr. cultivator and began work between the wide-planted rows of sugar cane on his plantation. By



MANEUVERING IN ROUGH SPOTS

July 16 he was able to state that he had cultivated a caballeria of ground with 10 hours' work at a total cost of \$12, which he divided up as follows: Gasoline, three cans at \$3 each, \$9, and 2 days' work at \$1, with a dollar extra to cover expenses. By the 25th of the month he had lowered his estimate to \$10 per caballeria, the saving being in gasoline. Meanwhile he had substituted a 9-tooth cultivator for the Planet Jr. or seventeen teeth, which is 9 feet wide and fills satisfactorily the full space between the rows of cane as planted by the Zayas system. He further discovered that the Ivel will plow the ordinary ground with perfect ease and with a smaller expenditure for gasoline than is needed for cultivating. The best results were gained with the machine moving at the speed of a man's walk. In rainy days in spite of the broad wheels the machine slips a little and sinks more than ordinarily in the ground. Up to November 24 the reports were that the machine behaved admirably, the only stops being for taking on gasoline and water. In December when it rained persistently Sr. Goncer started plowing with oxen again and soon calculated that work so done cost him \$140 per caballeria, which he covered at the rate of $2\frac{1}{2}$ acres per day. Sr. Goncer having mastered the motor was on deck planning changes in it. He desired the substitution of alcohol instead of gasoline for fuel owing to the cheap price of the former and prohibitive figure the latter sold at. He further wanted the one wide wheel in front replaced by a couple of steering wheels, far apart so that he might not crush down the soil between the cane rows but use it for planting corn. Besides this he wanted a heavier machine with an alcohol carbureter. Sr. Goncer comments on the agricultural motor as follows: "The agricultural motor is a small and handy traction engine, with sufficient weight and power to draw any implement. It can turn in a small space and is always ready to start. Like all agricultural implements it works best on lands free from stones and stumps. When alcohol can be manufactured from the discarded molasses of the cane the economy of this motor will be greatly increased."

Next to Cuba the use of the Ivel in Manitoba, a western province of Canada, is attractive. One of the illustrations shows it drawing a Deering binder on a prairie tract, another reveals it in the seeding time drawing a couple of seed drills behind it, and still a third illustration has it pulling a train of three wagons well loaded with straw and grain. From the Winnipeg factory several machines

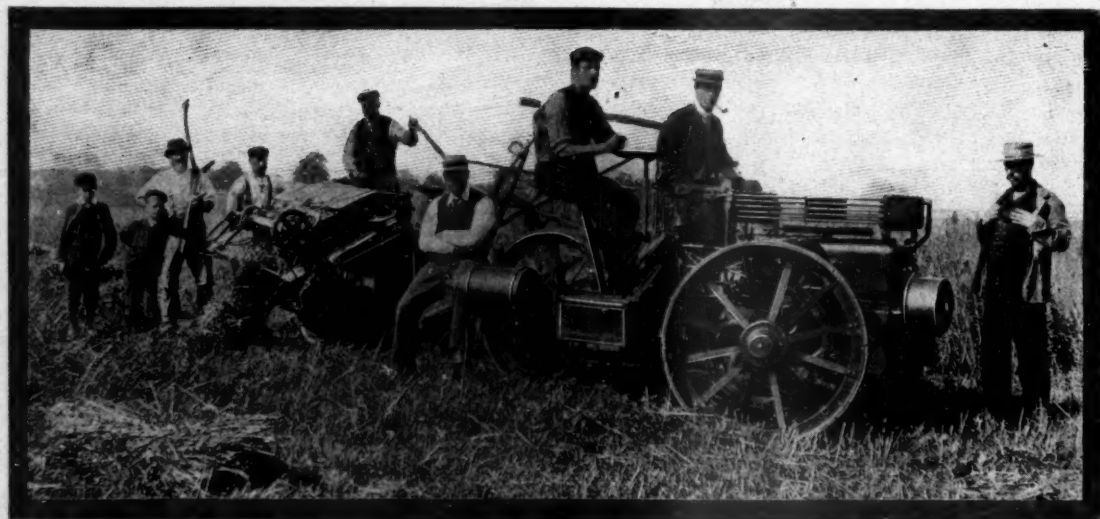


IVEL CULTIVATES THE VINEYARD

will be turned out during the coming season. The high price of gasoline in Canada acts against its rapid introduction, but with the developments in the manufacture of alcohol and the cheap price of it better progress is anticipated. In countries like the Canadian west, Kansas, Dakota, any western state and in the large corn fields of the center states the agricultural motor is specially applicable in that grains require to be sown as soon together as possible. In such case the motor can operate day and night doing the work of a score of horses and men.

But the honor of agricultural motors is not all with the Ivel. It is the present

In this garb it is fitted with a truck body over the third wheel and so clothed carries a 2-ton load. With this tipping load box the traction of the driving wheels is sufficiently increased to enable it to trail another wagon loaded with 4 tons behind it. When the truck body is removed arrangements are seen by which implements of all kinds can be attached at the rear. Here are attaching devices for plows, self binders, mowers, cultivators and other implements. The several adjustments in connecting any of these implements behind the tractor occupy less time than needed in the harnessing of a horse. In the front of the motor is seen a pulley used when the tractor is at stationary employment, like threshing grain. To do this the engine is started in the usual way and the shaft carrying the pulley is then thrown out by the friction clutch, whilst the belt is adjusted. The machine, like a threshing machine, may then be gradually set in motion by a slow engagement of the clutch. For traveling on the roads the motor is furnished with three speeds ahead, $2\frac{1}{2}$, $3\frac{1}{2}$ and 7 miles per hour, and all three wheels of the tractor aid in propelling. In starting the two front steering wheels do the driving and later the single back wheel at the back takes up the drive through a balance gear on the differential shaft. Neither of the differential wheels can slip unless the third wheel slips also, except when rounding a corner and then owing to the track of the third wheel being midway between the other two, the differential action is unfettered. This



SAUNDERSON GASOLINE TRACTOR OPERATING WITH ONE LARGE-SIZED SELF BINDER IN ENGLAND

leader but others are pursuing with a hot pace. Most conspicuous in this class is the Saunderson made by H. P. Saunderson & Co., Ltd., of Elstow Works, Bedford, Eng. The Saunderson motor is out-and-out a tractor, that is, a two or three wheel machine which can be fitted in place of the front wheels of a wagon when it carries its share of the load and does the drawing as well. At other times it uses three wheels, as when drawing a binder after it. For regular use the third wheel is used.

three-wheel drive gives the motor great tractive power for its weight—no wheel can slip without all three slipping and all the grip surfaces equally. Another feature is the running of the engine on petroleum oil or gasoline. The engine is first started on gasoline, and run for a minute or so when petroleum is turned on. The tractor consists of three wheels, the iron tank for holding the cooling water forming the base of the machine. The gear box mounted on this base carries the three

speed gearset running in oil. All parts are mounted on an angle steel framework. Cooling is insured by pumping the water from the tank through the jackets and then through 400 feet of brass tubing, which is kept cool by radiation aided further by the action of a large fan. Every vital part is made of cast steel. It is made in four sizes with 25, 30, 40 and 50-horsepower motors. The gearset for making changes of speed* is carried under the bonnet, ahead of the motor and practically directly above the front axle, the horse before the cart rule being followed to the letter in this regard. The speed ratios are furnished and drive from the gearset is through a bevel gear meshing with another bevel surrounding a differential in the center of the front axle. On the outer ends of the driveshafts in the axle are universal joints which permit of the wheels being turned for steering purposes without interfering with the revolving axles. The rear axle is driven by a propeller shaft running from the front differential to another in the middle of the rear axle, the back wheels being keyed to the ends of the revolving shafts within the axle. This propeller shaft is made in two sections bolted together through flanges so that when the back part of the machine is detached the two parts pull apart. When the front axle part with its motor and gearset is detached it can conveniently be attached to any farm implement, of course, aiding in giving the balance previously rendered by the back wheel.

Another agricultural motor is the Scott



SAUNDERSON AT THE PLOW

He controls through a hand wheel on a very rakish steering column. Behind him on a square platform is a large box for carrying coke, coal or wood, whichever fuel is used in case gasoline or oil is not used. The front of the machine is a good-looking automobile and the rear part a land roller. It is built by John Scott, Edinburgh, Scotland.

In the Simms gasoline motor, still another farm motor, built by Ransomes, Simms & Jeffries, Ipswich, lines similar to a home-made gasoline testing car are found, the bonnet being of accepted lines with a finned horizontal radiator bunched in front of the middle of it on a curved

adopted in most of the big American gasoline trucks. Invariably the arrangements for attaching the load are at the rear of the frame, a clevis and bolt attachment often being used, but other styles adopted when demanded. This clevis arrangement is particularly successful for plowing where the plows have to be set in different positions each day.

Calling it a traction engine would be justified by an uninitiated observer on his first seeing the Thornycroft gasoline agricultural tractor, built by John Thornycroft & Co., Cheswich, Eng., so large are its rear wheels, so small is the front pair and so similar is the body work with its short, vertical smokestack at front resembling a locomotive. But it is neither, being a simple gasoline motor with a sliding gear transmission to give a good variety of speeds and driving the rear wheels in the accepted fashion. The tractor is guaranteed by its maker to take a 6-ton load on a trailer up a 12½ per cent grade and has under tests gone up 10 per cent grades, traveling over a loose surface. The motor used is of the vertical type and has a pair of cylinders, each with a bore and stroke of 6 and 8 inches, respectively, the rating being 25 horsepower at reasonable crankshaft speed. Cylinders are water-jacketed and water flow within them is maintained by a rotary pump. Valves are mechanically operated, ignition is by low-tension with magneto and the smokestack in front is for carrying off the burnt gases after they have left the muffler.

The Tourand plow, from the factory of A. Tourand & Co., Suresnes, Paris, France, has been designed with the object of speed and little weight, its use being directly intended for work in the Nile valley, where long straight stretches of alluvial soil are to be cultivated. Consequently, it is not surprising to find very large rear wheels of steel construction and a small individual front wheel for steering. The gang of five or six plows is carried beneath the framework at the rear directly below the driver's seat and well behind the machinery. The motor with four vertical cylinders



SAUNDERSON THREE-WHEEL GASOLINE TRACTOR PULLS AT 7½ MILES PER HOUR HEAVY LOADS ON THE ROAD

steam tractor which is not a combination machine, but is hitched in front of all loads that it pulls. It is a stout little machine with a pair of very small steering wheels in front and the third wheel in the center at the rear in the form of a short roller, with heavy crosspieces on the tire to increase traction. The steam boiler, or generator, is carried beneath a typical automobile bonnet in front and the driver sits in rear of a regulation dash on a single spring seat over the back wheel.

metal framework that is exposed on all four sides of the machine. Beneath the motor bonnet is housed a standard four-cylinder, 20-horsepower vertical motor which is coupled through a cone clutch with a sliding gearset, affording three speeds ahead and one for reversing. The forward speeds are made suitably low, so that on fast travel the pace is not 6 miles per hour and on lowest speed it is a slow walk. Drive is by double side chains to the rear wheels, identical with the method

has a rating of 28 horsepower, the carburetor provides for the use of gasoline, heavy oil, pure alcohol or carburated alcohol, and in recent tests changes from one of these fuels to the other have been made every few minutes with good results. One hundred and twenty-five gallons of water for cooling the cylinders are carried in a triangular tank in rear of the front wheel. This large amount of water is essential, as a radiator is dispensed with.



SHOP KINKS

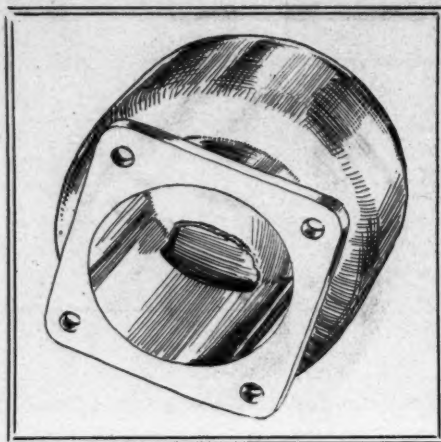


Good Self-Locking Nut

There is a certain form of self-locking nut which is made in two parts, both malleable iron castings. The inner or threaded part is split and is slightly tapering outside, and the outer or hexagonal portion compresses the inner portion on the threads when the nut is tightened. This form of nut is practically proof against backing off, but it is not equally sure to keep the bolt tight. The reason for this is that the contacting surfaces of the two parts are rough, and they compress or crush slightly under combined pressure and vibration; and when this happens some additional turns of the nut are necessary to draw the bolt tight. For this reason this nut should be used with caution when the bolt is subjected to tensile rather than shearing stresses. For example, if it is used on the bolts at the crank pin end of a connecting rod the bearing is likely to be shaken loose after it has been run a short distance.

Soldering Bracket to Radiator

The car in question had an old tubular radiator taken from a Fiat car and fitted with cast brass brackets to adapt it to its new location. The brackets were very light, being only $\frac{1}{8}$ -inch thick and of the shape shown in figure 1. The curve of the brackets was a little sharper than the curve of the lower corners of the radiator, and consequently they were held by soldering around the edges, the solder being plowed inward from the edges for an irregular distance, which perhaps averaged $\frac{1}{8}$ inch. One of these brackets held without trouble, but the other loosened several times owing to the spring and vibration of the sill supporting it, and re-

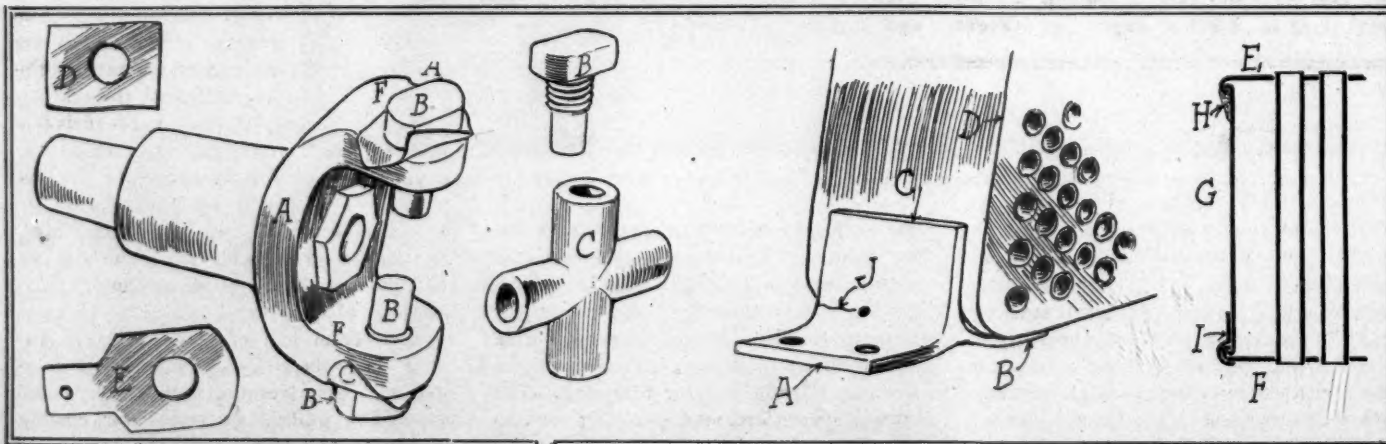


PREIGNITION PREVENTED—FIGURE 1

soldering became necessary. After it had been soldered two or three times without permanent results an attempt was made to flow the solder inward from the edges for considerable distance; in fact, to fill if possible the space existing between the bracket and the sheet brass of the radiator at the joint. This was something of a problem, owing to the fact that the casting had to be heated with a torch, and the flow of heat was liable to open the soldered seams at the edges of the radiator unless care were taken to prevent this. The problem was finally solved as follows: The radiator was taken off and placed so that the corner with the loose bracket was uppermost. The surfaces were thoroughly cleaned with sandpaper and the radiator surfaces were properly tinned with a soldering iron. The bracket was heated with a torch and given all the solder it would hold while hot. Then it was held in place with pliers and a soldering iron used to flow solder into the cracks, while the torch was still applied to the outer part A. Overheating of the front and back heads was prevented by wetting these occasionally with a bunch of wet waste. The bottom portion B was

first soldered, and when it had received all the solder that would flow under its edges it was allowed to cool till the solder had set. Then the radiator was turned to bring the edge C uppermost. The torch and the wet waste were again applied, and solder was flowed under C in the same manner. After the solder had finally set the job was touched up with a soldering iron. Obviously a successful job of this sort simply transferred the strains and vibration from the bracket to the seams of the radiator itself, and these had given trouble by leaking even before the repair to the bracket. The trouble was finally cured by giving the brackets an elastic support of sheet rubber and leaving the holding down bolts slack; a suitable locking device being used to prevent the nuts from unscrewing. At the same time a stay rod was run from the top of the radiator back to the dash, thereby relieving the bracket of strains due to fore and aft vibration. Before this was done it had been found necessary to solder two of the seams D of the radiator. These seams were formed substantially as shown in figure 2, which is a horizontal section with E and F representing the front and back heads, and G the side strip. The pieces E, F and G overlapped each other too little at the seams to give them much holding power, and covering them with solder as at H proved ineffectual. A permanent job was made by bending a strip of brass I to overlap the seam on both sides a sufficient distance to give the solder the necessary surface for holding.

Before the elastic support was provided for the bracket it was observed that the bracket had begun to crack, as at J, from



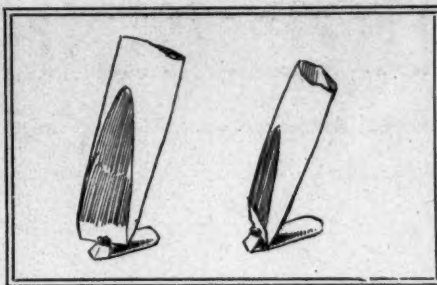
REPAIRING UNIVERSAL JOINTS

SOLDERING BRACKET TO RADIATOR

the unnatural strains put upon it. It seemed likely that a new bracket would be necessary, but before incurring that outlay resort was had to the device of drilling through with a small drill at the end of the crack as the sketch indicates. At this point the drill went into the open space between the bends of the bracket and the radiator, so that the latter was not perforated. The car has run a considerable distance since these repairs were made and there has been no sign of loosening, either of the brackets or radiator.

Repairing Universal Joints

A car that came lately under notice had universal joints in the propeller shaft, constructed substantially as shown in the sketch. Two forgings of the form shown in A were secured, one to each of the connected shafts, and the pivot pins BB, which were threaded into them, entered the arms of a Greek cross C, which in the sketch is shown separately. The Greek cross was threaded clear through in both directions, the arms intersecting each other. The means originally provided for locking the pins B against unscrewing proved inadequate, and attention was called to the fact that through one pin unscrewing it threw all the driving strain on the other, which naturally proved inadequate to the task. When the necessary repairs had been made a repetition of the disaster was



PREIGNITION PREVENTED—FIGURE 2

guarded against by cutting pieces of heavy sheet iron D, which could be run on the threads of B. When BB had been screwed down the corners of the pieces DD were bent up or down as the sketch shows to prevent unscrewing. Another device, which is not quite so sure but which makes it easier to unscrew B for the introduction of a fresh supply of grease into the Greek cross, is shown at E. It is a piece of sheet iron cut out as before and bent up around the head of B but having an extension at one side. This is drilled to register with a hole F to receive a cotter pin. By extracting this cotter pin B may be unscrewed without bending E.

Preignition Prevented

A motor which was in for repairs showed a bad case of spontaneous preignition. Things were helped somewhat

by scraping the carbon from the combustion chamber, which was done through the inlet valve and spark plug holes with the aid of specially formed scrapers, but the tendency to preignition was still more marked than it should have been. At length it became necessary to take the engine down to refit the bearings, and it was found that both cylinders had very sharp and irregular fins on the dividing line between the core of the valve chamber A and the top of the cylinder core. The position of these fins is indicated approximately in the sketch. To cut them out it was necessary to forge a chisel especially, as the ordinary shop chisels were much too short. Cutting out the fins was a delicate and tedious operation, as there was no means of knowing how thick the wall of the combustion chamber might be at that point, and too hard a blow with the hammer might drive the chisel right through. Moreover, one had to drive almost straight down on the fins, as, owing to the depth of the cylinder, it was impossible to slant the chisel very much. By dint of time and patience a satisfactory job was at length made, the chisel being applied with right and left twists alternately in the positions shown in figure 2, so as to nibble at the extreme corners of the ends of the fins. This was not an easy task, by any means, but gave desired results.

THE READERS' CLEARING HOUSE

SPEED IN THE ARDENNES

London—Editor Motor Age—We are accustomed at the present day to extraordinary speed performances, but I cannot help but think that the achievement of the de Dietrich team in the Ardennes race is so remarkable as to receive special mention entirely apart from the mere idea of an ordinary trade advertisement. The evolution of speed in connection with motor cars during the past 10 years has been a remarkable one. Individual performances have from time to time been achieved by various drivers on various makes of cars, but nothing approaching the achievement of the de Dietrich has ever been accomplished in regard to high speed reliability. The distance of the race was 600 kilometers, or about 375 English miles. Duray in his de Dietrich won in 5 hours 38 minutes 39 seconds, at an average speed of 66.44 miles per hour, Rougier finishing third, 11 minutes 32 seconds later, at an average speed of 64.252 miles per hour, Gabriel finishing fifth, 2 minutes 3 seconds after Rougier, at an average speed of 63.878 miles per hour, Sorel finishing seventh, 12 minutes 24 seconds after Gabriel, at an average speed of 61.705 miles an hour, the performance of the latter being very fine indeed when it is remembered this was his first appearance in a continental road race. Taking the average

time of the four cars altogether the speed works out at 64.07 miles per hour for the team, the total distance covered by all the cars being 1,500 miles. When it is remembered that three other cars finished in between these drivers it will be seen that the average speed accomplished by these seven men was considerably over that which I have mentioned, and as an evidence of the extraordinary reliability to be obtained from a racing car of the present day I think the result a marvelous one, as also is the performance of Wagner, who accomplished the first round of 85.715 kilometers—i. e., 53½ miles—in the extraordinary time of 45 minutes 29 seconds. Duray in his fourth lap in his de Dietrich accomplished the distance in 45 minutes 59 seconds, at an average speed of practically 70 miles an hour. Four years ago, in 1902, the average speed of the winner of the same race was just over 53 miles an hour, and yet within those 4 years such is the increase of speed that it is possible for eleven men to accomplish the distance at a much higher rate of speed and yet not be able to win the race in 1906. Such is automobile speed history.—Charles Jarrott.



ELECTRIC CARS

Sylvia, Kas.—Editor Motor Age—Will you please tell me through the columns of the Readers' Clearing House if there is any electric car using storage batteries that will run from 300 to 400 miles without recharging the batteries. If consistent can you give your opinion on electric cars as compared with other cars.—O. G. Hinshaw.

Motor Age has never heard of an electric car running 300 or 400 miles on one charge of the battery. Many trials have been made and 100 miles have been covered. The distance traveled will be gauged to a large extent by the rate of discharge. Ordinarily about 40 or 50 miles is the limit radius without recharging.

ELECTROLYTIC WATER JACKETS

Waukegan, Ill.—Editor Motor Age—Please describe through the columns of the Readers' Clearing House the method used for electrolytic deposition of copper water jackets on the motor cylinders.—A. O. D.

In the few instances where information has been given out the method consisted in building up a wax core on the cylinders proper for the water space. After the deposit is made this core is melted. One of the most extensive experimenters in this direction reports the game is not worth the candle.

SUBURBAN GARAGE A BIG SUCCESS

DETROIT, MICH., Sept. 15 —The suburban garage in Detroit is a success, and a big one at that. At least so proclaim three Detroit retail concerns, which at the opening of the present season packed up their effects, shook the dust of Detroit's automobile row on Jefferson avenue and trekked out Woodward avenue nearly 2 miles, right into the heart of the most aristocratic residence section of the city. They packed up, with old friends and business rivals giving them the laugh and predicting it would be impossible for them to keep up with the strenuous game without maintaining a place of business in the old district. Now, however, with a prosperous retail trade and their establishments actually crowded for room by the demands of those desiring storage accommodations for their cars, the young men who took the chance are handing back the laugh, especially since a couple of the hitherto skeptical firms have been looking up similar locations. Beyond a doubt no small share of the success of the three concerns which started the innovation has been due to the fact that a new building, especially constructed for the purpose, awaited them. Mrs. Emma Farwell, the head of the Jesse Farwell estate, one of the wealthiest in the city, had the nerve to take the chance. At an expenditure of about \$40,000 she constructed on some vacant property on the avenue a triple garage. In its design the wants of the automobile dealers were consulted throughout. The structure was planned simply, without basement and but one story in height. The construction was of solid brick, and skylights were plentiful in the roof design. The entire frontage is 160 feet, giving each of the three garages a width of about 53 feet. The depth is also 160 feet, making the entire structure a perfect square. The largest part of each

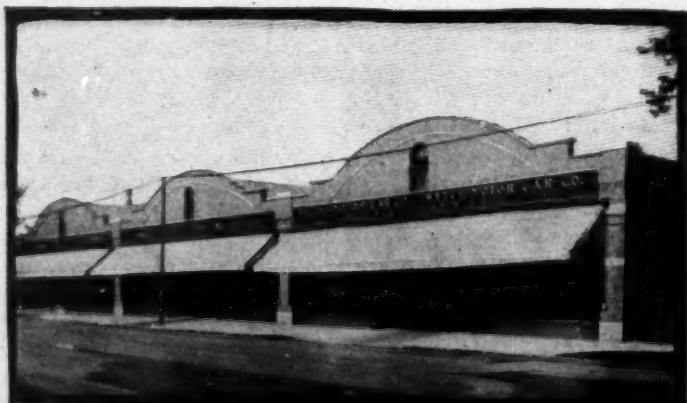


VIEW OF THE INTERIOR OF GRANT BROTHERS' GARAGE

garage is, of course, given up to the salesroom. The brick walls have been painted white, and the light reflected from the windows in the roof is as plentiful as in a photograph gallery. Hardwood floors are varnished as brightly as those of most people's parlors. Office room is provided at the rear and to one side. Back of the salesroom is the garage proper and repair room. This is 53 by 60 feet in size, cement floored and with a sharp pitch to the center to permit of perfect drainage. Locker rooms run along the side for the benefit of the chauffeurs in charge of the cars stored in each garage. The three concerns combined at the time of the construction of the building to install a motor and a compressed air tank, thus saving a lot of labor in tire inflation. The gasoline tanks are uniform and are under the alley back of each garage. The heating of the entire building is done from a central station which supplies the neighborhood, and no fire of any sort is kept in the building itself, even in winter. From the first the experimenters found an astonishing demand for storage space from the owners of cars, many of whom reside in every block in the neighborhood. In many cases the ability of the firms to house the cars

helped sales. The superior accommodations offered lured chauffeurs from the downtown district. Retail trade did not suffer, and all the three have prospered beyond belief. The concerns occupying the garage are respectively the Soules Motor Co., which handles the Soules, Welsh and Baker electric; Grant Brothers, local agents for the Buick and Thomas, and the Standard Automobile Co., with the Packard, Peerless and Autocar. William V. Newman, George and Charles Grant and John Brady, the respective managers, have been friends in the automobile trade since its beginning and were all of them at one time in the employ of William E.

Metzger, the first retail dealer in Detroit. A unique feature of the triple garage is the fact that, while the three firms are all walled off from each other at present, archways were put into each of the partitions at the time of construction, allowing the garages to be thrown together if at any time this is desired, and it was thought possible that at some time the annual Detroit automobile show might take place there, as the floor space is much greater than that of the Light Guard armory, where the shows have been held in the past. However, there is nothing doing in this line this year, for the promoters of the show have tied up with the armory people again; but it is a satisfaction to know that the dealers have an ace up their sleeve in their suburban garage, so if the armory becomes to small or its owners demand too much rent, there is always a place like this to fall back on. The experiment, for it certainly can be classed as such, of opening a garage in this district was a bold one, but it takes nerve these days to be successful. That others will follow in this direction before long is evident and that they will meet with the same success is expected by those who watched this experiment.



FRONT VIEW



SIDE VIEW

DETROIT'S SUBURBAN GARAGE

CHICAGO TO NEW YORK BY EASY STAGES



GAVE THE FARMER PLenty OF ROOM



STOPPED TO QUIET A FRACTIOUS HORSE

NEW YORK, Sept. 16—Of a Wednesday noon in August, hot and under a high bright sun, the American Mors party drove away from the Chicago Beach hotel bound for New York. The car was a 24-32-horsepower machine, fresh from the factory; an '07 touring model. There were four aboard—Sales Manager John, of the St. Louis Car Co., as the parental influence of the excursion, a mechanic driving and two passengers to pull in the sides of the tonneau going through narrow places or around suddenly sharp corners. Jackson park and its Spanish caravels left over from the discovery of America at the time of Chicago's world's fair flashed by, and in a twinkling the car hit the maze of wretched streets that puzzle he who would pass through South Chicago and by its roaring, smoking mills. A worn macadam led swiftly to Hammond; then a better road to La Porte and Valparaiso, and then bottomless sand on the way to South Bend. This had been an easy, pretty and even uneventful afternoon's ride. The trip was hardly yet a tour. The next afternoon the car made a valiant 184 miles to Toledo, going through a land of sheep and telephone wires. The sun sank before the tourists reached their mark, and as they ran steadily through a gradually flattening country of fewer trees and fewer hills they turned occasionally to watch the myriad reflections of the sun that had bid au revoir with a triumphant flash of red and purple clear across the sky. As the red faded they left the wandering road and hit a level macadam that they knew would lead to Toledo. The headlights were lit and watching for nothing but unexpected traffic ahead the tourists rollickingly rushed the last 15 miles through a low land that smelt of rank weed and gave no token of their whereabouts in the somber night. At Toledo they were told that the roads eastward would be bad,

and for several miles into this northern Ohio country they thought they had been misinformed. As the travelers whirled over the block pavement of Euclid avenue, leaving Cleveland for Erie and Buffalo, the real touring spirit grasped them and with it, of course, much of the joy of the country itself. They put on brakes hard for the big hill at Painesville and found it not so big a hill as in the days of saddles and pedals. They left the smooth road behind and did the last 50 miles over a succession of ridges. At Erie boys in search of garage trade scuttled after them with greater vehemence than the cappers for railway hotels.

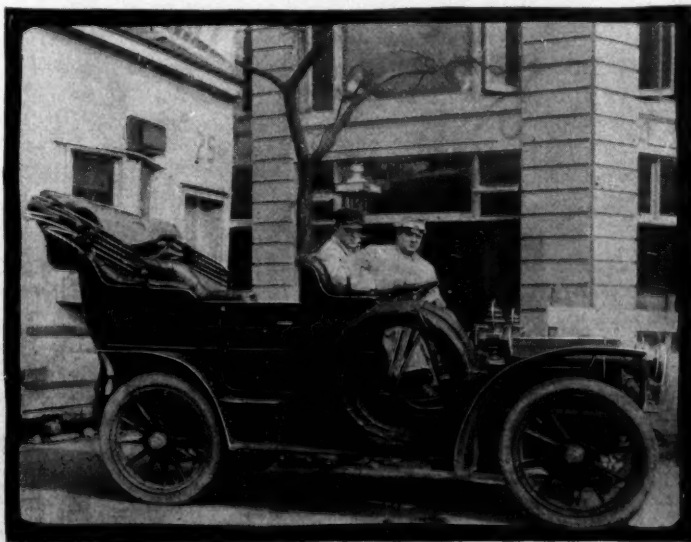
On their next stage they added a passenger, one Tucker, of rubber interests, who had travelled the section by train and trolley and buggy. They hit the high spots for his benefit. That afternoon they rode through the Indian reservation of western New York and stopped a couple of times to talk to disappointing red men in blue overalls, who said they worked all day in a yellow canning factory putting green corn into cans.

At West Seneca they stopped to inquire the way of mill hands just pouring out of the mammoth steel plants and picked up

a dozen youngsters who, never having had an automobile ride before, were willing to hang on the running board and then walk back home from "downtown." There is a beautiful parkway leading into Buffalo, but they did not find it and drove across lots through an ocean of sand right by the lake. Buffalo they did not leave until dusk, and the evening ride out over the smoothest of smooth macadam, then over the ruttiest of rutty clay, and then again on macadam that ran along a river silent and slightly reflecting the inconsequential moon into Rochester which was one of the most delightful stages of the tour. It was a fast run but a peaceful one through a peaceful night.

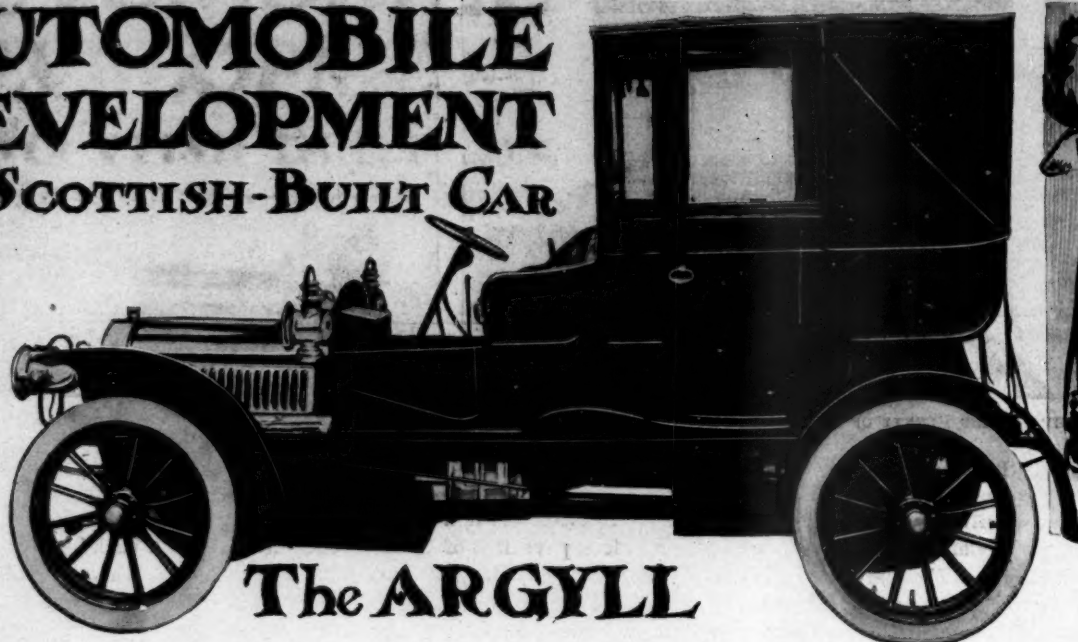
"Cross the canal, turn to the right; cross the canal, turn to the left." This is the story of the 98 miles between Rochester and Syracuse. Around and about and up and down; over stones and threshing along ruts. The bridges are of the hump-back variety and the approaches short sharp turns. The tourists passed a string of canal boats and Shay at the wheel looked and marveled as he stopped the car to get a surer vision. Three miles an hour in this fashion was new to him. It is funny along that valley across into

New York. The Hudson is wonderful, but to the writer's mind the hundred miles through the Mohawk that preceded the ride down from Albany to New York is far the prettier of the two. South of Albany they ran over and around hills and on smoother highway. But the stone-fenced corners and the well-kept lawns and private parks gradually increased and told of coming metropolitan influence. Some of the charm of nature was missing. Then comes a string of suburbs continuous and unbroken and the first thing you know you have reached New York. Thus the John party made 1,087 miles in the American Mors.



MR. JOHN'S ARRIVAL IN NEW YORK

AUTOMOBILE DEVELOPMENT A SCOTTISH-BUILT CAR



The ARGYLL

SCOTLAND with its highlands and lowlands, its lochs and glens, its pastoral mountain life and conservative business centers, never has been associated very closely with the motor car development of Great Britain, yet the present season has seen the Argyll car, a Glasgow product, eclipse in sales that of every competitor in the seagirt isle. Since the opening of the season the Argyll Motors, Ltd., for so the concern designates itself, has sold no less than 3,000 cars, most of the four-cylinder type. Before the close of the season this limit will be considerably exceeded. Besides this considerable output much of the factory's attention has been absorbed in the building of the new plant which was formally opened in June, and which plant from every standpoint takes second place to none in the European manufacturing world. Exterially it is a manufacturer's thought in stone, the high turrets, central golden cupola, magnificent doorway arches and window curves speaking a mind determined on only the best. Interiorally the new factory is a leader, with its immense window areas, sanitary grinding ventilation, steam heating and all other modern luxuries. The building has a street frontage of 760 feet, is two stories throughout, covers 20 acres of land and cost \$250,000. Two thousand men are on the pay roll throughout the year, and in June fifty cars a week were turned out. The power for the plant comes from eight producer gas engines of 300 horsepower, each working at an expense of 1/2-cent per brake horsepower per hour, thus surpassing in cheapness anything previously attempted by the firm. The shops are high, well-

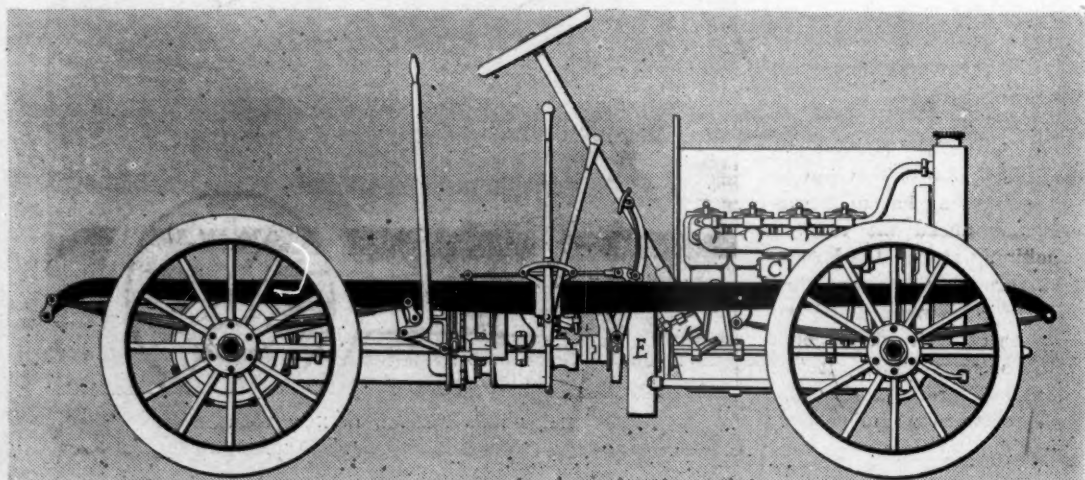
lighted and spacious, with electric arc lights throughout for night work. The machine shop has 64,500 square feet floor space, the tool shop 32,000 square feet, and the other departments are in required proportion.

The Argyll engine is of four sizes: 10-12 horsepower—two cylinders, each 95 mm. bore by 140 mm. stroke; 12-14 horsepower—four cylinders, each 88 mm. by 110 mm.; 16-20 horsepower—four cylinders, each 88 mm. by 130 mm.; and 26-30 horsepower—four cylinders, each 105 mm. by 140 mm. Those at present being fitted are largely of Aster, French, make, but the company, as the new works extend and it catches up, its orders has arranged to manufacture its own engines entirely under license from the Aster company.

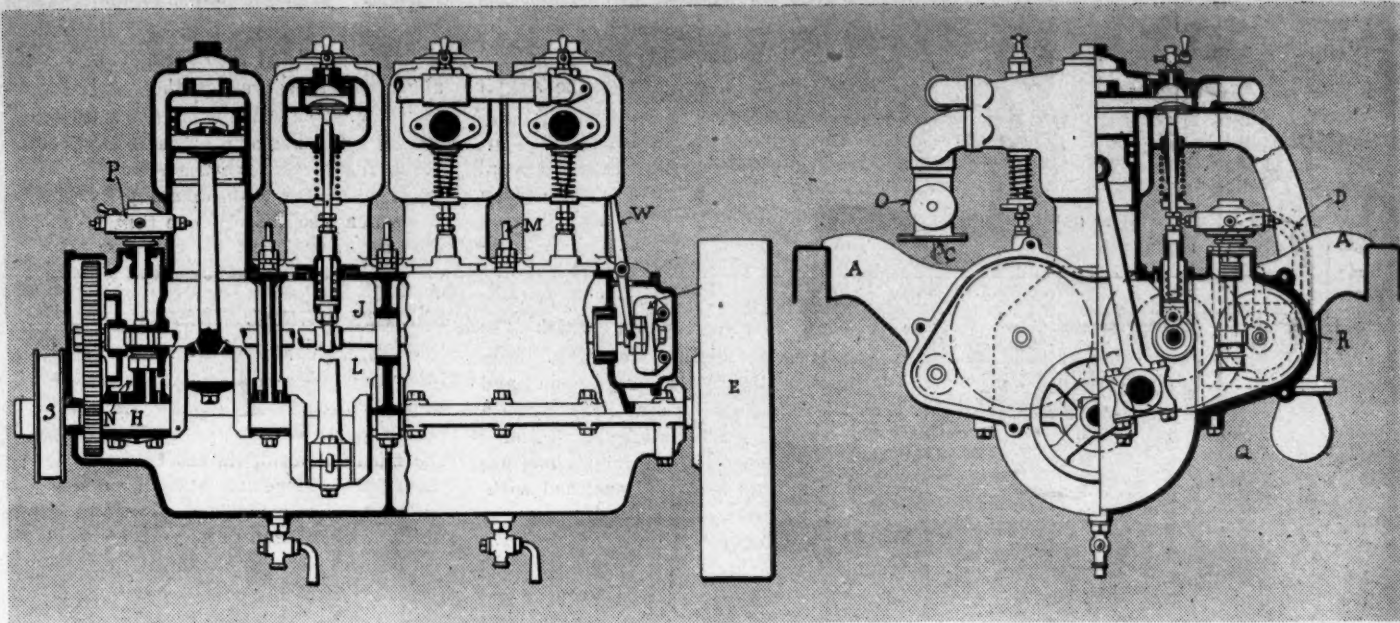
The Argyll cars have no really distinctive feature, except the gearing, which is of original design, the invention of Alexander Govoa, the managing director, and perhaps the section of the pressed steel frame. The side members of this portion of the machine are of []-shaped cross section, a form which has been found strong and serviceable. The cross mem-

bers are three in number, of substantial proportions, and the front one is so bent as to pass under the radiator.

In the plan and section chassis views of one of the four-cylinder cars the general arrangement will be observed. The engine having cylinders cast separately is carried by four brackets, A, attached to the main frame. Cooling is by a honeycomb radiator and a fan, the water circulation being maintained by a centrifugal pump of peculiar construction inasmuch as it has no stuffing-box, a water-tight joint being obtained by using the end thrust of the rotary wheel. The carburetor C is of standard Longuemare type fitted with a special automatic air inlet valve, and the inlet tubes are so arranged as to have the valves equidistant from the carburetor, by which a uniform mixture is secured. Ignition is by a high-tension magneto D, but accumulators are also provided to supply an alternative form for an emergency. From the crankshaft the drive is carried by a multiple disk clutch, making contact with the recessed flywheel E, thence through the change speed gear mentioned, thereafter by means of a shaft having a



RIGHT SIDE ELEVATION OF ARGYLL CHASSIS, SHOWING LONG REVERSE LEVER WELL TO REAR



SIDE AND END SECTION OF ARGYLL 26-30-HORSEPOWER MOTOR WITH MAGNETO IGNITION

universal joint within the casing F, and another G, to the differential on the live rear axle.

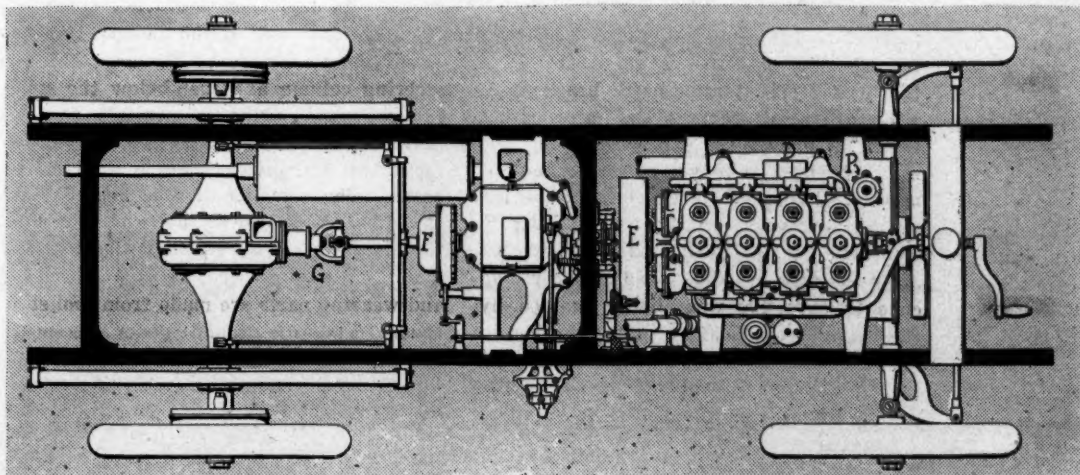
The motor cylinders, cast separately, have ample cooling space. The piston is of good dimensions, and is attached to the round section connecting rod—machined from a steel forging—by a wrist pin, which is secured in position by the locking pin shown. The crankshaft H is of nickel steel turned from a forging and ground to size. Bearings are provided between the cranks, supporting them in alignment, and the bearings are so constructed and bolted as to permit of the lower half of the crank-case being removed without the bearings being disturbed. The cranks are set at 180 degrees and have a normal speed of 1,100 revolutions per minute. The camshaft J is operated by a half-speed spur-wheel, and the valves—mechanically operated on opposite sides—are interchangeable. The bearing sleeves of the camshaft are so large as to permit the withdrawal of the cams and shaft for examination, but an inspection door is also provided for more cursory examinations. The valve spindles are fitted at

the ends with rollers to avoid noise and friction, and the lift of the cams can be adjusted by a screw and locknut. The partition dividing the crankcase into two parts is provided to secure efficient piston lubrication, which is by splash, when the car is climbing or descending hills, but the crank bearings are lubricated from the dashboard reservoir by means of the pipes M and the main bearing oil pockets N. The commutator P is operated by a spiral wheel Q, and a spur-wheel R actuates the magneto. S is a pulley fitted to the forward end of the crankshaft to drive the cooling fan. A centrifugal governor T takes effect on the balanced throttle valve O by means of the levers V.

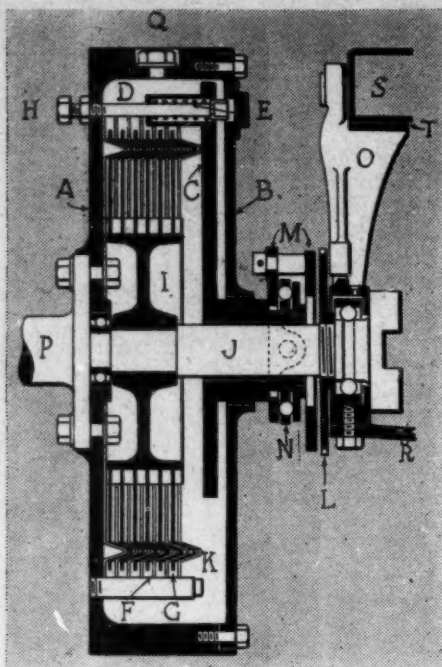
The clutch running in oil is of the multiple-disk type contained within an oil-tight chamber recessed within the flywheel A shown in the clutch illustration. The flywheel is bolted to the engine shaft P, while the casting I is carried on the shaft J. The plates F and G seen in section are circular in form, with a circular portion of each cut out in the middle, and have V shaped indentations going round near their circumferences to fit the one into the

other. These plates are free to move towards P or J, but are prevented from revolving, except when P or J revolves, by semi-circular notches on the outer edges of F engaging with a series of pins K carried on A; and by square notches on the inner edges of G fitting with square projections on the outer edge of the circular casting I. The two sets of disks are maintained in frictional contact by three springs E, each contained within a case D, moving on three adjustable bolts H, and by pressure from a bearing plate C. As the pressure of the springs E is relieved or withdrawn by means of a pedal acting on the ball-race N, the drive may be varied in speed by allowing the disks to slip from full positive action, in which the shaft T revolves as rapidly as P, to complete separation, when J would stop. The stoppage of the car is completed in an emergency by the plate M being brought into frictional contact with the disk L, when the clutch is completely released. Small springs are fitted round the edges of the plates F and G to assist in the separation when the pedal is pressed.

In the change speed gear case the drive from the clutch is taken by the dog clutch A to the pinion E, which carries a jaw-clutch K. The shaft carrying the pinion F, with its jaw-clutch K', is not rigid with the shaft on which E is carried, but runs on a bearing within that shaft at K. The pinions E and H, and J and G, are always in mesh, the only pinions to be moved into action with others being the low speed pinion when starting, and the reverse pinion in the cover B'; and as both movements take place while the car is

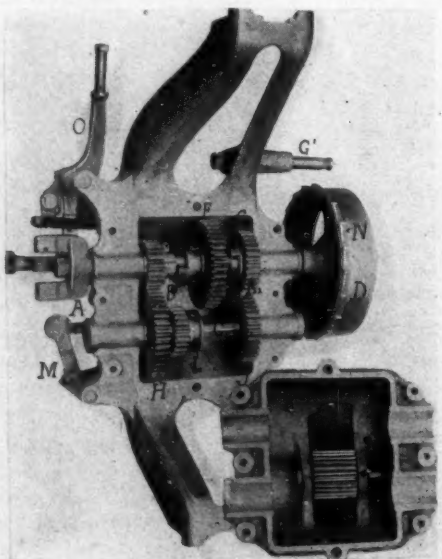


PLAN VIEW OF ARGYLL 26-30-HORSEPOWER CHASSIS WITH SHAFT DRIVE



ARGYLL DISK CLUTCH

at rest, it is claimed that the spur-wheels never change mesh when the car is running. There are three speeds and reverse, and to obtain the highest the pinion F, having a jaw-clutch on each side and moving on a square cross section part of the shaft, is moved towards E until the clutch K¹ engages with K, when the drive to the shaft carrying the brake-drum D and the sprag N is direct. The second speed is obtained by moving F until its other clutch engages with K² on G, when the drive is two-thirds the speed of the highest and is from E to H, H to J, J to G, and G to F. The lowest speed—one-third of the highest—is obtained by sliding the pinion I on the square cross section lay-shaft C into mesh with F, when the drive is from E to H and I to F. To obtain the reverse the wide-faced pinion A¹, carried eccentrically on the spindle C¹ within the gear-box cover, is moved into mesh with I and



ARGYLL GEARSET

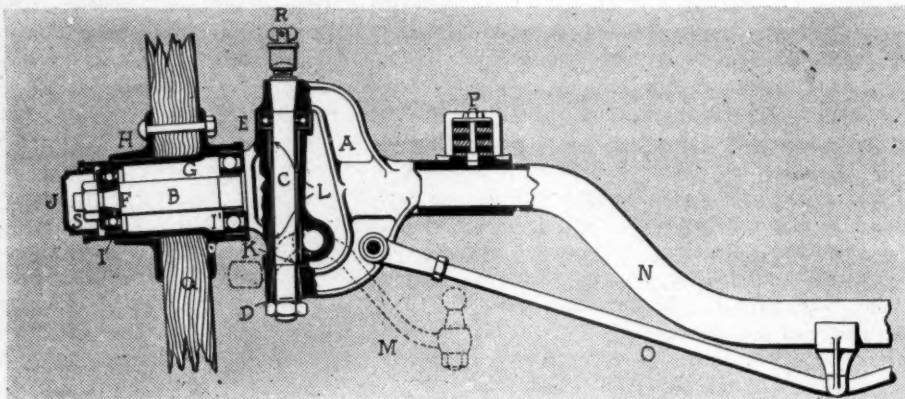
F. The gear is fitted with a device which prevents the jaw-clutches from being injured by an incompetent driver, and the simplicity of the gear, combined with its "fool-proof" arrangement, has had a good deal to do with the success of the Argyll cars.

Argyll rear axle construction incorporates within it the bevel gear differential through which the power from the cardan shaft is communicated to the driving shafts of the axle. The tubular axle cases are brazed into the lower part of the differential housing and at their outer ends support rigid brackets on which the springs of the car chassis are seated. Supporting the differential expansion and screwed into the spring seat brackets is a tension or truss rod for stiffening the axle support. The four differential pinions are carried on a cross head and enclosed within a housing within which also are the bevels on the inner ends of the axle-drive shafts. These shafts are of nickel steel and revolve on roller bearings. Hardened steel sleeves are fixed to the shafts and within the casing sleeves wherever rollers for bearing purposes are used. On each side of the differential as well as between

the ball bearings and steel bushes. The hub B, machined from a steel stamping, carries the hub on the ball bearings I and I'. The balls in these bearings have small springs placed between them to keep them apart and thus prevent the possibility of jamming. The space G is filled with solidified oil by means of a grease pump, the oil being forced through the channel S. The oil is prevented from escaping by the cap K—which also absorbs side thrust—and by the cap J, sufficient oil being injected at one filling to last 1,000 miles.

STERK'S SIGNAL SIREN

Webster defines the siren as "an instrument for producing musical tones of any desired pitch." Originally its field was circumspect, subject to the limitations of the musical world, its use being to decide the number of sound waves necessary per second to give a musical sound of a given pitch. It consisted of a rotating disk with a circle or more of perforations, the disk rotating within a casing having perforations similar to those of the disk. The motor car, with its usual irresistibility, has taken the siren from its musical associations and placed it on the front of the car,



ARGYLL TRUSSED FRONT AXLE AND STEERING PIVOTS

the cardan shaft pinion and its front bearing are ball end thrusts and the pinion on the end of the cardan shaft is supported by a plain bearing at its rear, its shaft continued entering a plain bearing supported in the differential casing. The top of the housing is removable.

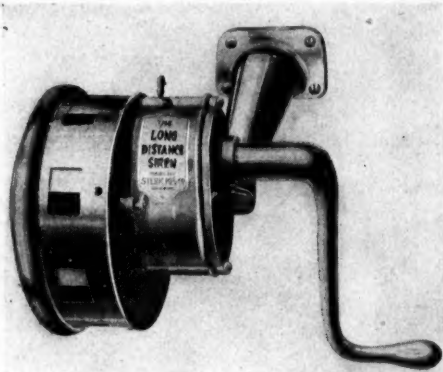
The front axle is one of the not least interesting features of the Argyll car. It consists of the weldless steel tube N pressed to shape and braced by the stay rod O, which is attached at either end to the cast steel steering-head brackets A. Each of these brackets has jaws within which is placed the swivel carrying the road wheel. The swivel vertical spindle C moves in hardened steel bushes L, and the weight is carried on the ball bearing E. The swivel is rigidly secured to the bracket A by means of a locknut and the adjusting cone D, excessive wear being avoided by the use of large bearing surfaces of hardened material combined with efficient lubrication. The last is provided for by the nut R, whence drilled oil channels lead to

where it does duty as a horn, or other signalling scheme. In using the siren on the car the disk must be rotated at exceedingly high speeds before loud sounds are produced. The Sterk Mfg. Co., 71 Wells street, Chicago, uses a hand siren, one in which a few turns of a crank by the hand is sufficient to produce a sound that can be heard long distances ahead. The company mounts its device on a bracket extending from the rear side of the dash so that the siren crank is close to the right of the steering column and just below the steering wheels, making it possible for the driver to take his right hand off the steering wheel and give the crank a couple of turns. The rotating disk is geared from the siren crankshaft so that a slow turn of the handle gives a very high speed of the disk. To make operation easy all gears and wearing parts are made from tool steel hardened and file ground; gears and shafts revolve in an oil bath. The disk has a perforated rim, similar to the rim of a wheel, and in the casing is a series of square

openings which are in register with those of the disk. The casing is finished in brass and aluminum.

WAUGH'S INVERTED SPRING

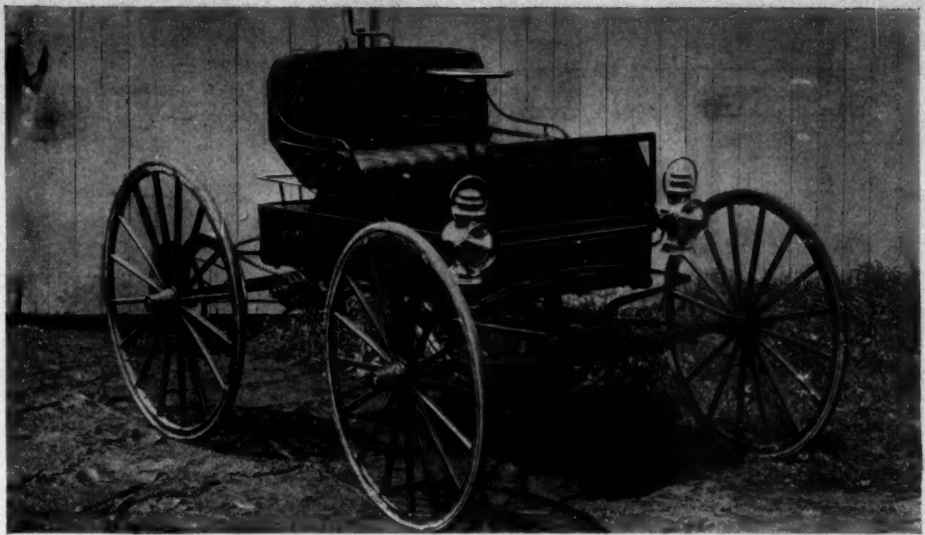
J. Milton Waugh, 1525 Monadnock building, Chicago, has patented and developed a novel spring for motor car and motor truck uses which he purposes showing to the automobile public on the occasion of the motor parts show, to be held in Chicago next week. His spring, illustrated, possesses features covered by two basic patents: the first that of having all of the plates or leaves the same length; and, second, having the spring arched, oppositely to a semi-elliptic, and working over an oval spring seat. The top illustration shows the spring straight from end to end as when shipped to an owner, and the lower portion with the arched leaves shows the spring curvature owing to the weight of the car body. With the passengers in place the curvature is increased 1 inch. A indicates the framework of the car; B, curved spring hangers, and C, spring blocks into which the ends of the leaves fit closely and are pivoted at D to the hangers. To hold the leaves in place during shipment from the factory a setscrew G is



STERK'S SIGNAL SIREN

made use of. Resting on the car axle F is an oval-topped spring seating E with a plate H projecting from either end, the plate measuring 18 inches in length, 2 inches in width and with a thickness of $\frac{3}{8}$ inch. The length of the leaves is much the same as that of semi-elliptics now used, for a five-passenger car the maker using six leaves, each 2 inches wide and $\frac{1}{4}$ inch thick, those for the rear springs measuring 48 inches in length and those in front 44 inches. The leaves used are made by the Garden City Spring Co.

In this spring the maker claims to eliminate 80 per cent of the recoil present in the ordinary spring. In the spring's action under load the curvature of the leaves over the oval seating increases with the load. When well compressed the leaves shorten, throwing the end blocks C at an angle with reference to their pivotal connections D, increasing the tension between the plates in curving so that the greater the curve the greater the tension, as when striking an elevation or depression on a



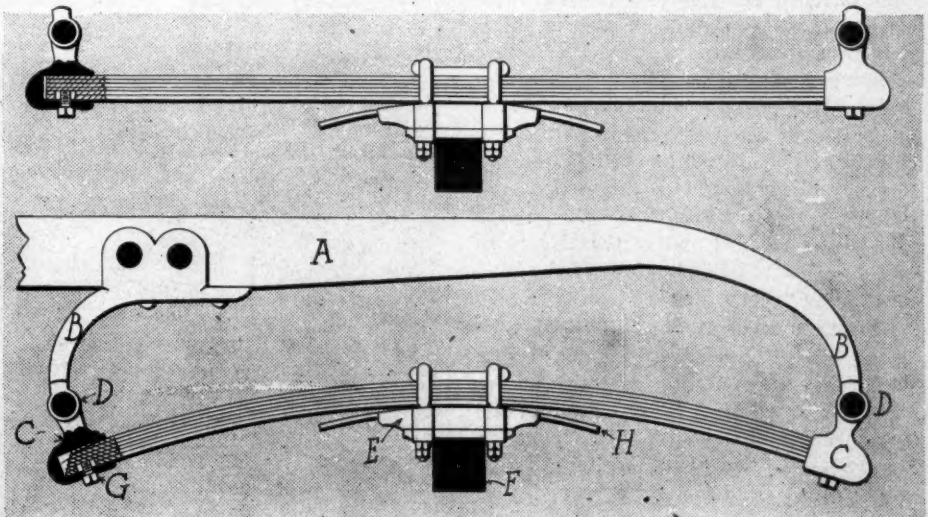
HATFIELD'S UNIQUE FRICTION-DRIVEN BUGGYABOUT

road. In the recoil the tension, or frictional adhesion between the leaves, has to overcome by the stiffness of the leaves and in this action much of the force of the recoil is absorbed, preventing the spring in its return from reaching a straight position and therefore eliminating the throw. With a slight load the leaves are nearer straight and it requires less weight to give a slight curvature with the leaves straight than to give a similar curvature with the leaves already well curved, hence the maker's claims for easy riding with light load.

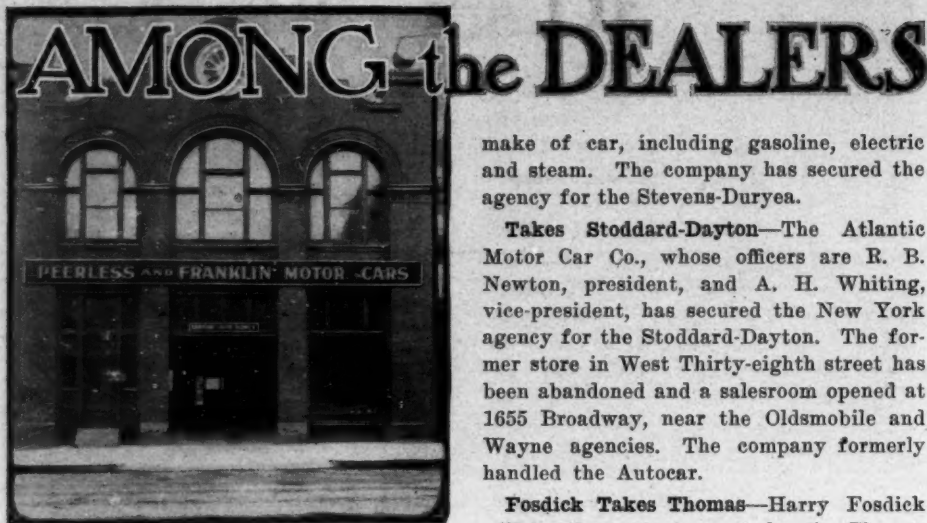
CALLS IT A BUGGYABOUT

The Unique motor buggy, built by C. B. Hatfield, 260 Orchard street, Cortland, N. Y., is one more example of the ingenious inventor who, not contented with the standard runabout, takes the short cut of motorizing a standard horse buggy, with what are said to be very satisfactory results. The buggy running gear and body is one of the regular output of the Cortland Wagon Co. and besides its square line piano box has 36-inch wheels in front and 40-inch ones in rear, the whole set shod with solid cushion tires. The wheels with tires weigh 170 pounds, a goodly fraction

of the total 600 pounds of the completed vehicle. In motorizing this Cortland wagon a two-cylinder motor, of the air-cooled class, is so installed that the flywheel is carried horizontally beneath the center of the box, the aim being to eliminate vibration such as arises where the flywheel is carried vertically, as in all other motor cars. The flywheel further performs the function of a friction disk, the reader bearing in mind that the Unique is a friction-driven car having neither a change speed gearset nor differential; in fact, there is not a gear in the entire vehicle. Bearing against this disk is a friction wheel for conveying the power to the jackshaft. This friction driving scheme affords ten speeds ahead and three for reversing, all thirteen being attained through the horizontal lever carried on the steering column. With the lever in a position pointing straight to the right, the drive wheels remain idle, the friction wheel then being opposite the center of the friction disk and resting against what is termed a "floating rest." Moving the lever ahead in regular order gives the half-score of forward speeds; pulling it back brings into action any of the reverse trio.



WAUGH'S INVERTED SEMI-ELLIPTIC SPRING



MOULTON-JORDAN STORE, MINNEAPOLIS

Dealers Take An Outing—The Boston Automobile Dealers' Association held its annual outing Wednesday at Tudor farm in Sharon, Mass.

Adds to its Line—The Park Square Auto Station, 43 Columbus avenue, Boston, Mass., of which C. F. Whitney is manager and N. B. Buxton secretary, has secured the agency for the Stoddard-Dayton for eastern Massachusetts, including Worcester county.

New in Pittsburg—Application has been made for a charter for the Iams Motor Co., of Pittsburg, which will open a garage at 5986 Center avenue, where it will handle the Royal Tourist. S. P., S. R. and I. E. Iams are the proprietors of the new concern about to start.

C. G. V. Headquarters—Forbes J. Hennessy, as attorney, has leased the new garage to be erected on the west side of Broadway, New York, just above Sixtieth street, to Emil Voigt and Gaston Rheims at an aggregate rental of \$172,000. Voigt & Rheims will use it as an American headquarters for the C. G. V. cars.

Maxwell in Buffalo—The Maxwell-Briscoe Motor Co. is establishing at 24 Goodrich street, Buffalo, a special agency for handling Maxwell machines in that city and territory. This new agency will be known as the Maxwell-Briscoe Buffalo Co. and the active head will be C. C. Pleasdale, formerly the general traveling representative of the Tarrytown factory. He was formerly identified with the Northern Mfg. Co. Later he had charge of the Kentucky state agency for the Ford.

Georgians Open Up—The Capital City Automobile Co. has opened its quarters in the old Peachtree auditorium, with an entrance on Grand alley. The officers of the company are: President, J. H. Nunnally; vice-president, George C. Walters; treasurer, Asa G. Candler; secretary and general manager, Mixon Bell. The repair department is to be in charge of B. H. Warthen. Every arrangement has been made for handling, storing and repairing every

make of car, including gasoline, electric and steam. The company has secured the agency for the Stevens-Duryea.

Takes Stoddard-Dayton—The Atlantic Motor Car Co., whose officers are R. B. Newton, president, and A. H. Whiting, vice-president, has secured the New York agency for the Stoddard-Dayton. The former store in West Thirty-eighth street has been abandoned and a salesroom opened at 1655 Broadway, near the Oldsmobile and Wayne agencies. The company formerly handled the Autocar.

Fosdick Takes Thomas—Harry Fosdick will be the eastern agent for the Thomas the coming season, C. S. Henshaw retiring. Church & Partridge, until recently known as the Decauville Automobile Co., have added another American car to their line by taking the Stearns agency for New York. They already import the English Daimler and C. G. V., and are agents for the Babcock electric and Franklin cars.

New Orleans Show Outlook—As the walls of the Brooke winter garden in Baronne street, New Orleans, begin to take definite shape, the automobile dealers are putting renewed energy into the discussion of plans for the show, which is scheduled to take place some time this winter. The exact date for the exhibition has not yet been set, but it is known that the large hall of the garden, built somewhat on the style of the Chicago coliseum, will, if negotiations are successful, be chosen for the show's headquarters.

Small Show at Fair—While the number of exhibitors was not as large as anticipated, there were sufficient automobile exhibits at the Indiana state fair, held at Indianapolis last week, to prove interesting, and compared most favorably with the size of the horse-drawn vehicle display. Among the cars represented were

the Marmon, Premier, Ford, Wayne, Cadillac, Reo and Holsman, and a number of sales resulted from the display. The lack of sheltered pavilions prevented many companies from exhibiting but, notwithstanding this, the exhibition was a success.

Opening Autocar Branch—Convinced that better results can be obtained through the medium of a branch house, the Autocar Co. has discontinued its Philadelphia agency connection with the Keystone Motor Car Co., at 238 North Broad street, and after necessary alterations will open, about November 1, a branch at 249 North Broad street. Pending the completion of the work of the big corps of carpenters and decorators temporary offices have been established on the second floor of 249 North Broad street.

In New Garage—The Palace Auto Co. has been formed in Kansas City, with a capital of \$75,000. J. P. Batchelor and John C. Hughes, of the Bankers' Trust Co., of that city, are respectively president and secretary and treasurer, while C. A. Cook is vice-president and general manager. The garage, now practically ready for business, is at 1408-1410 Walnut street, in a commodious building, of which two floors and the basement will be used. The company has the agency for the Pierce and expects to add a moderate-priced car to its line of high-priced cars before the opening of next season.

Has a New Place—The Moulton-Jordan Motor Car Co., of Minneapolis, agent for the Peerless, Franklin and Cadillac cars, has a new concrete garage at 217-219 Fourth street south, which has few equals in the country. The building is two stories high, constructed entirely of concrete, with a span of 40 feet, and no pillars at any point on the floor. The main floor is used exclusively for a garage, with front and alley entrances. The offices and salesrooms occupy the front part of the second floor, and extensive shops are located to the rear of the salesrooms for the handling of repair work.



INTERIOR OF MOULTON-JORDAN MOTOR CAR CO.'S GARAGE AT MINNEAPOLIS



MADemoiselle D'ARCY PREPARING TO "LEAP THE GAP"

Gymkahana in Massachusetts—A gymkahana contest will be held at Worcester, Mass., on September 22. Nearly all the Massachusetts clubs have announced a run to Worcester on that day.

Wants More from Motorists—The Minnesota state board of equalization has decided to raise the tax on automobiles. The average assessment now is not much over \$200 and it is likely the valuation will be increased 25 per cent.

Club for Jopliners—An addition to motor elubdom is the new organization formed at Joplin, Mo., which has elected P. Christman president, A. E. Bendelary and Charles De Graff vice-presidents, C. A. Morsman secretary, and T. W. Cunningham treasurer.

Getting Over the Quake—A new touring club is to be organized under the name of the San Francisco Touring Club. It will work in conjunction with the Automobile Club of California, and will promote club runs and in time will have a club house a short distance out of the city.

Ohio Bent on Having Good Roads—Bonds have been sold in the amount of \$21,500 for the construction of stone roads in Ottawa county, Ohio, the improvements being made on the Wauseon and Troy thoroughfares, where \$5,000 per mile is being spent for good roads.

Petroleum Test Postponed—The tests carried out by the Automobile Club of France to establish a commercial motor burning crude petroleum have been postponed till October. The three types of motors already tested are held not to fulfil the condition exacted and further entries are asked.

Speed in National Parks—Before a meeting of the city council of Vicksburg, Miss., last week the question of driving automobiles in the national park there came up for discussion. It seems that several complaints have been registered regarding speeding through the driveways of the reservation. Captain Rigby stated there

was a law which limited the speed of automobiles in national parks to 10 miles an hour, and that the Vicksburg park would be made no exception to the rule. The authorities were ordered to keep an eye open for violators of the act.

Veterans Ride—One of the chief features of the reunion of the Mississippi division, United Confederate Veterans, held in Jackson, Miss., September 12 and 13, was the parade on the afternoon of the 13th. The chief feature of that parade was the fact that over half of the veterans, too old to walk, occupied automobiles. The machines were decorated with national and confederate colors.

Tri-City Tour—About fifty members of the Cleveland Automobile Club with their friends made a tour to Cambridge Springs, starting Saturday morning, where they met a large party representing the Pittsburgh Automobile Club and the Buffalo Automobile Club. The roads were in excellent condition, though somewhat dusty. This run was arranged for in lieu of a fall race meet such as has always been held in Cleveland about this time.

Takes Nerve to Do It—Thousands of Washingtonians have been thrilled during the past week by the performances of Mademoiselle Yvonne d'Arcy in "leaping the gap" in a Cadillac runabout at Luna park. The act is highly sensational, for the intrepid young woman makes a complete somersault in the air in the car. She is strapped in the car to prevent her falling out when the car circles high in the air. The car is hauled to the top of the incline by means of a trolley. It is then released and starts down the steep

incline with the velocity of an express train. At the proper moment a platform collapses and a powerful spring gives the machine its somersaulting impetus. After describing a graceful arc in the air it lands safely on a padded platform and the act is at an end.

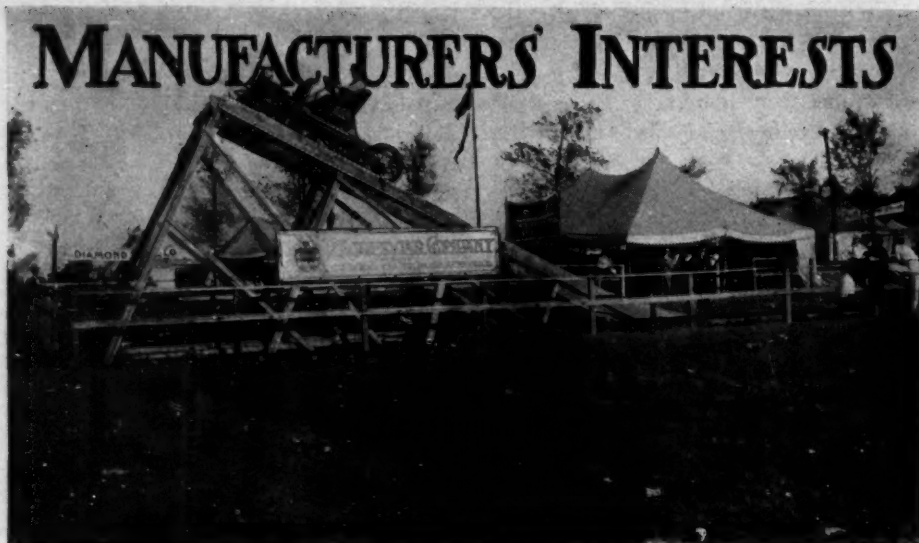
Lots of Space This Year—The December French show will have more exhibitors than ever this present year, but every one will have plenty of room to exhibit, except in the great central nave of the Grand palace. The galleries, which have not been very attractive of past years owing to their being given over to accessory makers, will be arranged in a more interesting manner in 1906 than it was last year.

Club Wants More Room—The members of the Cleveland Automobile Club are discussing the advisability of securing larger club quarters than those now occupied in the Hollenden hotel. The present quarters are of course convenient and the hotel is a gathering place for all traveling men and tourists, but the members want better facilities. They want a garage where cars can be stored and attended to while they are at the club or theater, and many of them want gymnasium facilities and baths, and there are quite a few who would like to have bachelor apartments.

Escape Mob in Car—Instances of the great variety of uses to which automobiles are put are many. I. M. Luddington, a Clyde, N. Y., contractor, found that an automobile afforded him a means of an escape from a gang of Italians, who, it is alleged, threatened his life. Fortunately his automobile was near at hand, and as he ran towards it around a bend in the hill he shouted to his driver, Ross Gillette, to crank it. Young Gillette knew how to act promptly, and when his employer, with a howling mob at his heels, reached the car and climbed in he was by his side and off in a moment. When they were out of danger, Ross slowed down and coaxed the gang to follow the automobile for half a mile or so until the pursuers had become thoroughly winded. Then he drove on to Lyons, N. Y., where Mr. Luddington busied himself for a while in swearing out warrants for the apparent leaders.



"LEAPING THE GAP"—MADemoiselle D'ARCY IN MIDAIR



EXHIBITION STUNT BY A CARTERCAR ON 50 PER CENT GRADE

Eight-Cylinder Car—H. H. Buffum, of Boston, is now testing out a new eight-cylinder car for the 1907 market which has a 115-inch wheelbase.

Kilgores for Carriages—The manufacturers of the Kilgore pneumatic shock eliminators report that so satisfactory has their device proven in connection with use on the automobile on the Mexican roads, that they have received a communication from one of their large agents to design an outfit which can be applied to the carriages in use in that country.

DeLuxe for Detroit—The DeLuxe Motor Car Co., which was endeavoring to locate a factory in Toledo, has decided to establish in Detroit. A deal has been completed by which a number of Michigan capitalists will finance the deal, providing the factory will locate in Detroit. Options on land on the east side of the river in Toledo had already been secured by the company, but when the capital was not forthcoming the deal was abandoned.

Another Maker—Announcement has been made of the organization of a new concern headed by men of experience in automobile manufacture. It is the Dragon Automobile Co., with headquarters at present in New York and with an office at 17 Campau building, Detroit. The president of the company is John Kane Mills, formerly interested in the Oldsmobile Co., of New York, while F. S. Corlew, who had charge of Oldsmobiles in Boston, will be vice-president. The general manager is Harry Rawle, formerly chief engineer in the United States navy. The car to be marketed will be of the touring type fitted with a four-cylinder engine, sliding gear transmission, and will sell at \$1,500. The engine will be 4 by 4½ inches with a rating of 24-26 horsepower. Only one style of chassis will be built, but with a half-dozen different styles of bodies. The first half-dozen cars are expected to be ready within a few weeks, work having been started some time ago. The new company has made application for membership in

the American Motor Car Manufacturers' Association and will exhibit at the show of the automobile club, to be held in Grand Central palace December 1 to 8.

Factory in Chester—The Johnson Motor Co., of Chester, Pa., builder of the Johnson gas and gasoline engines, will shortly start the erection of a large factory on West Front street.

Goes to Dundee—A. Wilbur Colter, formerly secretary of the Consolidated Mfg. Co., of Toledo, O., former manufacturer of the Yale automobile and the present maker of the Yale-California motorcycles, has taken the position as vice-president and manager of the Maumee Motor Car Works, at Dundee, Mich.

Will Make Lamps—The American Auto Brass Mfg. Co., of Columbus, has been incorporated with a capital stock of \$20,000, to take over the business of the Hygienic Stove Mfg. Co., of 183 West Maple street. The latter company will be dissolved, and the plant on Maple street will be much improved. The company will manufacture all kinds of automobile and carriage lamps, specialties for automobiles, etc. George F. Hill is president, E. F. Yohe secretary and Milo B. Lee treasurer and general manager. The incorporators, in addition to those already named, are Roy Coffman and Ed S. Adams.

Orient Plans—The Waltham Mfg. Co., maker of the Waltham-Orient motor cars and Orient buckboards, with a factory at Waltham, Mass., has planned to double its output for 1907. It has purchased six lots adjoining its present plant and is securing bids for several new buildings. Its estimated production for 1907 will consist of 200 touring cars and 2,000 buckboards. The line comprises two 20-horsepower, governor-controlled cars, also a 16-horsepower runabout. There is a 4-horsepower buckboard friction transmission and a delivery car of the same type and power. Since the resignation on September 1 of General Manager L. B. Gaylor, owing to poor health, the affairs of the company are

administered by an advisory committee of department heads, consisting of Manager E. S. Church, Sales Manager E. P. Chalfant and Auditor L. J. Hart.

Tries Out Big Six—W. H. Hildebrandt, sales manager of the J. Stevens Arms & Tool Co.'s automobile department, drove the first of the 1907 six-cylinder cars, which are of 50 horsepower as distinguished from the smaller sixes, down from the factory at Springfield, Mass., to the New York agency on Monday.

Hartford to Sell Vinets—E. V. Hartford, president of the Hartford Suspension Co., has perfected arrangements to manufacture and market in this country the Vinet detachable rim which Szisz used on his Renault in the grand prix. According to the arrangements the Hartford company will immediately undertake the manufacture of these rims. It will be some time before the rims are placed on the market, but in the meantime orders are being booked and will be filled in the order of which they are received.

DeCamp Now Manager—E. L. DeCamp has been appointed general manager of the Kansas City Motor Car Co. to succeed George K. Wheeler. The appointment is effective September 15. Other changes may be announced in the course of a few days. There are to be some radical changes in the conduct of the company's affairs, but these have not yet been announced. An engineer, L. M. Dietrich, has been secured from the Aerocar factory in Detroit and will design a new touring model, to be placed on the market in the spring providing it has been sufficiently tested out for the company to stand behind it with its guarantee. Small change will be made in the commercial equipment, further than a refinement of design and in minor details.

Alcohol Prospects—That the manufacture of alcohol in the state of Louisiana will soon be one of the greatest industries in the south, is the belief that is now widely expressed. The recent agitation in favor of denatured alcohol as a fuel for automobiles, power boats and farm machinery has given the matter great impetus. Louisiana, it is said, will soon supply practically the entire country with the commodity. One of the leading authorities, who would not allow his name to be mentioned, stated last week: "It will prove to be the greatest revenue producing agent in Louisiana. Millions of dollars are waiting to be coined by the planter. Thousands of tons of raw material which are now considered surplus matter and thrown away as waste can be put to advantage, and heaps of rubbish in the way of pine shavings, tanks of sugar cane refuse, now considered as only fit for the garbage heap, will in the near future be put to use in the manufacture of alcohol." Sugar cane refuse, it has been established, is one of the best producers of alcohol, second not even to potatoes.

He stated also that several stills, which cost in the neighborhood of \$10,000 each, will be installed on plantations shortly. And this is only the beginning.

Bayliss Locates—James Bayliss, formerly with the Chicago Packard agency, has been appointed general central sales manager for the Elmore.

A. L. Bennett Changes—A. L. Bennett, formerly assistant manager of the old Mors Automobile Co., has now associated himself as sales manager with the new Mors representatives in this country, Cryder & Co., 583 Park avenue, New York city.

Kalisch Reorganization—The Kalisch Air Brake Co., of St. Louis, increased its capital stock of \$200,000, owing to the rapid increase of business and is now having some plans and specifications drawn up for a large factory, which will have an output of twenty brakes a day. The officers of the reorganized company are: Fred Kalisch, president; Robert Glendinning, vice-president; James S. Lapsley, second vice-president; James Hardie, treasurer, and W. J. Edwards, secretary. The company has now under course of construction a speedometer and odometer combined which it will place in the market in the near future.

Standardizing Parts—At last a long stride has been taken toward the standardization of automobile parts. A long list of dimensions and specifications for hexagon head screws, castle and plain nuts, from the length of a quarter to one inch, has been prepared by the mechanical branch of the Association of Licensed Automobile Manufacturers. As the result of exhaustive experiments and elaborate practical demonstrations, it has been agreed that the finer threads hold better and are stronger than the coarser threads on bolts. At any rate, all the nuts and bolts in the cars of the twenty-nine makers of the licensed group will be interchangeable next year, and this means a great deal.

Northern After More Room—The Northern Motor Car Co., of Detroit, is now looking over several sites with a view to erecting a new factory building which will permit the firm to treble its output during the coming year. The present quarters of the firm on Champlain street have been crowded with the steady increase in the amount of machinery and the number of employees and the company faces an impossible condition in view of the growth of the demand for its output. The new quarters will have, it is announced, an acreage sufficient to allow of plenty of factory and office space, a testing track and all the attachments of a factory of the most up-to-date description. During the past year fully \$75,000 has been expended on additional machinery and 400 men have been kept busy, working overtime nearly all season. The Northern model K will be the firm's leader for 1907. The car was run over 8,000 miles and, at the end of the

trip, the gears failed to show the slightest symptom of wear. The new car develops 60 horsepower and has four cylinders.

Croninger Convalescent—R. Harry Croninger, sales manager of the Dayton Motor Car Co., has returned to the office after a serious illness. Mr. Croninger was absent about 2 months and spent most of his time in Kentucky, taking a much-needed rest.

Fire in Detroit—A large fire totally destroyed the plant of the Anderson Carriage Co., of Detroit, and the office building of the C. R. Wilson Body Co., manufacturer of carriage and automobile bodies. The loss is estimated at \$75,000 to \$80,000, with insurance in full.

Reeves' Recruiting Trip—Alfred Reeves, general manager of the American Motor Car Manufacturers' Association, who was in the west again last week on matters connected with the show and membership recruiting, says with significance that he met with considerable success in both directions.

Egyptian Demand—The Egyptian demand for automobiles and motor cycles is an increasing one. This applies not only to the cities of Cairo and Alexandria, where the more expensive cars are in favor, and where there are roads of a kind practicable for a certain type of cars, and where motor cycles are used by the military officers. One American company, the maker of a light runabout, established an agency in Egypt, but though a few of the machines were sold they did not find favor as against the French cars, which, while light, were claimed to be more substantial. The French manufacturers almost monopolize the Egyptian market, but there is complaint of the high prices, and several dealers have declared that a substantial American car which could be marketed at a moderate price would be able to compete with the French cars in the cities, while in the country districts there was more than an even chance. Rubber tires are in constant demand because the blaz-

ing Egyptian sun soon wears them out. The importations of automobiles and motor cycles in 1905 figured \$176,000.

Pauck Quits Business—Ernest Pauck, general manager of the Toledo Motor Boat & Power Co., of Toledo, O., has disposed of his stock in the concern and has taken the management of the Universal Machine Co., of that city. The stock was purchased by Charles R. Messenger and W. Wheaton, who have been stockholders in the concern since it was incorporated early in the year.

Cartercar Denial—R. A. Palmer, secretary of the Motorcar Co., of Detroit, writes Motor Age as follows: "There are many reports current regarding the incorporation of the Carter International Motor Car Corporation, Inc., and a late report states that it is about to build a \$1,000,000 factory at Washington, D. C. As this report has led a number of our friends to believe that it is our company, we desire to say that we are not in any way connected with the enterprise named, nor is Byron J. Carter, whose services are retained exclusively by this company and whose patents are controlled by us. The Garter of the Carter International Motor Car Corporation, Inc., is not related in any way to our Byron J. Carter."

New Schebler Plant—Wheeler & Schebler have broken ground for their new carbureter plant at Indianapolis. The factory will face 227 feet on Shelby street, 225 feet on Sanders street, 227 feet on Barth avenue and will be built of concrete and will be two stories high. The new foundry, machine shop and assembling room will be opened January 1 with a force of 400 men employed. The output will be not less than 500 carbureters a day. One of the new molding machines installed will do the work of twenty men. Mr. Wheeler recently contracted with the Pittsburg Reduction Co. for 100,000 pounds of aluminum to be used in the manufacture of carbureters. Deliveries of carbureters for 1907 will start February 1.



BREAKING GROUND FOR SCHEBLER CARBURETER PLANT IN INDIANAPOLIS



BRIEF BUSINESS ANNOUNCEMENTS



Boston, Mass.—H. E. Whiting, of the Motor Mart, has been appointed agent for the Mora.

Hartford, Conn.—The Law Automobile Corporation, of Bristol, has filed a preliminary certificate of dissolution.

New York—T. J. Wetzel, the eastern representative of the Brown-Lipe Gear Co., is now located in the Spaulding building.

New Haven, Conn.—Work has been commenced on the new garage for the Holcomb company which is to be built on Goffe street.

Columbus, O.—The Metropolitan Motor Co. of Cleveland, has been incorporated with a capital stock of \$10,000 by Andrew Squire, H. J. Crawford, A. J. Sperrey and F. P. Shellhorn.

Albany, N. Y.—The West Eighty-seventh Street Garage Co. has been incorporated with a capital stock of \$5,000 by Bert C. Bell, John C. Billmyer and Edward F. Roche, all of New York city.

Norfolk, Va.—The contract has been let to C. R. Parlett for the erection of a motor garage on Mill street for F. S. Royster. The building will cost about \$4,000, and a number of automobiles will be kept on hand for hire.

New York—The National Automobile Co. has filed schedules in bankruptcy, giving the assets as \$10,018 and the liabilities as \$7,935. J. Edward Demar was the president of the concern and Charles T. L. Allen, secretary.

Syracuse, N. Y.—The Bacon-Chappell Co. has closed out its automobile business and will devote all its attention to its department store business in the future. A new Rambler agency, for which cars the company was the local representative, will shortly be opened.

Newark, N. J.—The New Jersey Auto Car Co., of 226 Halsey street, Newark, has been incorporated with a capital stock of \$100,000 to engage in a general automobile business, renting, repairing, etc., by Benjamin S. March, Louis Popper and E. L. Popper, all of Newark.

New York—The Automobile Cover & Top Co. has been purchased by Fickling & Co., of 154 East Fifty-seventh street. The plant has been enlarged to permit of the building of limousine and tonneau bodies, as well as the upholstering of tops and the handling of general automobile accessories.

New York—J. Jay Dunne, who has been connected with the American Auto Storage Co. and later with the local branch of the Pennsylvania Rubber Co., has been appointed manager of the Manufacturers' Motor Car Co., which intends to enlarge its present capacity by renting the building now occupied by the Sidney B. Bow-

man Co. It will conduct a general garage and repair business under the name of the Bryant garage.

Troy, N. Y.—The Troy Carriage Co., of Fifth avenue and Federal street, has been appointed agent for the Wayne.

Holyoke, Mass.—The new addition to the factory of the Holyoke Motor Works has been completed and machinery for the plant is on the way.

Bozeman, Mont.—R. W. Hey will open an automobile garage in this city. Part of the capital stock for the enterprise is being supplied by Senator Clark.

Columbus, O.—The Cleveland Motor Car Co. has been incorporated with a capital stock of \$300,000 by W. L. Colt, George C. Ford, H. H. Johnson and J. C. Reroth.

Boston, Mass.—The Bath Automobile & Gas Engine Co. has been incorporated with a capital stock of \$10,000 by E. W. Hyde, S. R. Frye and Orrin F. Frye, all of Bath.

Salt Lake City, Utah—The New Salt Lake Automobile Co. has made a voluntary assignment to H. J. Rivers. The property of the company is appraised at \$1,902.69, while the liabilities amount to \$2,625.43.

New York—The H. H. Fuller Realty Co. has leased for Conrad Hubert the twenty-four buildings formerly occupied by the Higgins Carpet Co. fronting on Forty-third and Forty-fourth streets and running through from Eleventh to Twelfth avenue.

RECENT INCORPORATIONS

New York—Motor Cab Co. of New York, capital stock \$5,000. Incorporators, M. C. Browne, H. J. Craig, of New York city, and H. F. Carson, of Haverstraw.

Portland, Me.—The Chase Engine Co., capital stock \$200,000. Incorporators, Horace Chase, W. E. Pearson, C. H. Tolman and E. E. Huston.

New York—Motor Car Service Co., capital stock \$10,000, to deal in automobiles. Incorporators, C. G. and E. W. Wridgeway, of New York city, and D. D. Holmes, of Kingsbridge.

Portland, Me.—Children's Vehiele Corporation, capital stock \$150,000, to manufacture carriages. Incorporators, J. P. Carney, Gardner, Mass., and Ben Thompson, of Portland.

St. Louis, Mo.—Borbein Automobile Co., capital stock \$10,000. Incorporators, H. F. Borbein, W. L. Johnson, Charles Borbein and S. V. Johnson.

Columbus, O.—Imperial Garage Co., capital stock \$10,000, to buy, sell and manufacture automobiles, their appliances and furnishings. Incorporators, F. R. Scott, E. J. Williams and W. S. Van Fossen.

Eldridge, N. Y.—Eldridge Motor and Tool Co., capital stock \$15,000, to manufacture motors, engines, machinery, etc. Incorporators, R. B. Sweet and W. L. Eldridge, of Eldridge, and G. E. Delong, of Syracuse.

New York—A. B. Nichols Co., capital stock \$25,000, to manufacture automobiles. Incorporators, A. B. Nichols, J. W. Righter and Joseph F. Taylor.

Guthrie, Okla.—Enid Motor Car Co., capital stock \$10,000. Incorporators, C. S. McCalland, C. A. Myers, J. P. Marshall and W. A. McQuilkin.

Among the new tenants are the Commercial Auto Storage Co. and the Manhattan Sight-Seeing Auto Co.

Winona, Minn.—The Adams Automobile Co. was burned out with a loss of \$3,000; partial insurance.

West Chester, Pa.—The Chester County Agricultural Association is erecting a large motor garage on its grounds here.

Tacoma, Wash.—Plans have been completed for the garage which is to be built by Herman Klaber at North I and Ninth streets.

Hartford, Conn.—The Whitlock Coil Pipe Co., of Elmwood, maker of feed water heaters, condensers and coolers for automobiles, has increased its capital stock from \$200,000 to \$500,000.

Flint, Mich.—The building of the Oak Park Power Co. will probably be ready for occupation in about 60 days. The new plant will supply power for the new Buick and Weston-Mott factories.

New York—H. G. Houck has made announcement of the establishment of an agency for two more cars. They are the Pungs-Finch and the Mieusset. The headquarters are to be at 1853 Broadway.

Dayton, O.—The Dayton Automobile Co. has been incorporated with a capital stock of \$25,000. The new concern will not manufacture motor cars, but will establish a garage. The incorporators are J. L. Baker, E. E. Burkhardt and H. A. Tressler.

Wilkes Barre, Pa.—A change has taken place in the management of the Kingston Garage & Motor Car Co., of Wyoming and West Market streets, Kingston. G. W. Schulte, of Scranton, has purchased the entire concern, and installed S. D. Bishop as resident manager.

Bucyrus, O.—George Eberhart & Sons have purchased the Simons garage from J. H. Simons, who is forced to retire from the business owing to ill health. Guy Simons will remain as manager for a while at least. The change in ownership will take effect at once.

Toronto, Ont.—The Canada Cycle & Motor Co. has acquired the plant of the Crown Knitting Co. and will use the building, when improvements are completed, as a body finishing, upholstering and painting shop. The main factory will be used for machine and assembling work.

Muncie, Ind.—The Muncie Auto Parts Co. is erecting a new building at Elliott street and the Lake Erie & Western railway tracks. It is a two-story brick structure, 32 by 100 feet, and when the company takes possession it will double its capacity, employing about fifty men. The old plant is being run night and day, and it is expected the new place will have to do the same thing.

American Motor League

Official Bulletin

National Headquarters, Vanderbilt Building, New York

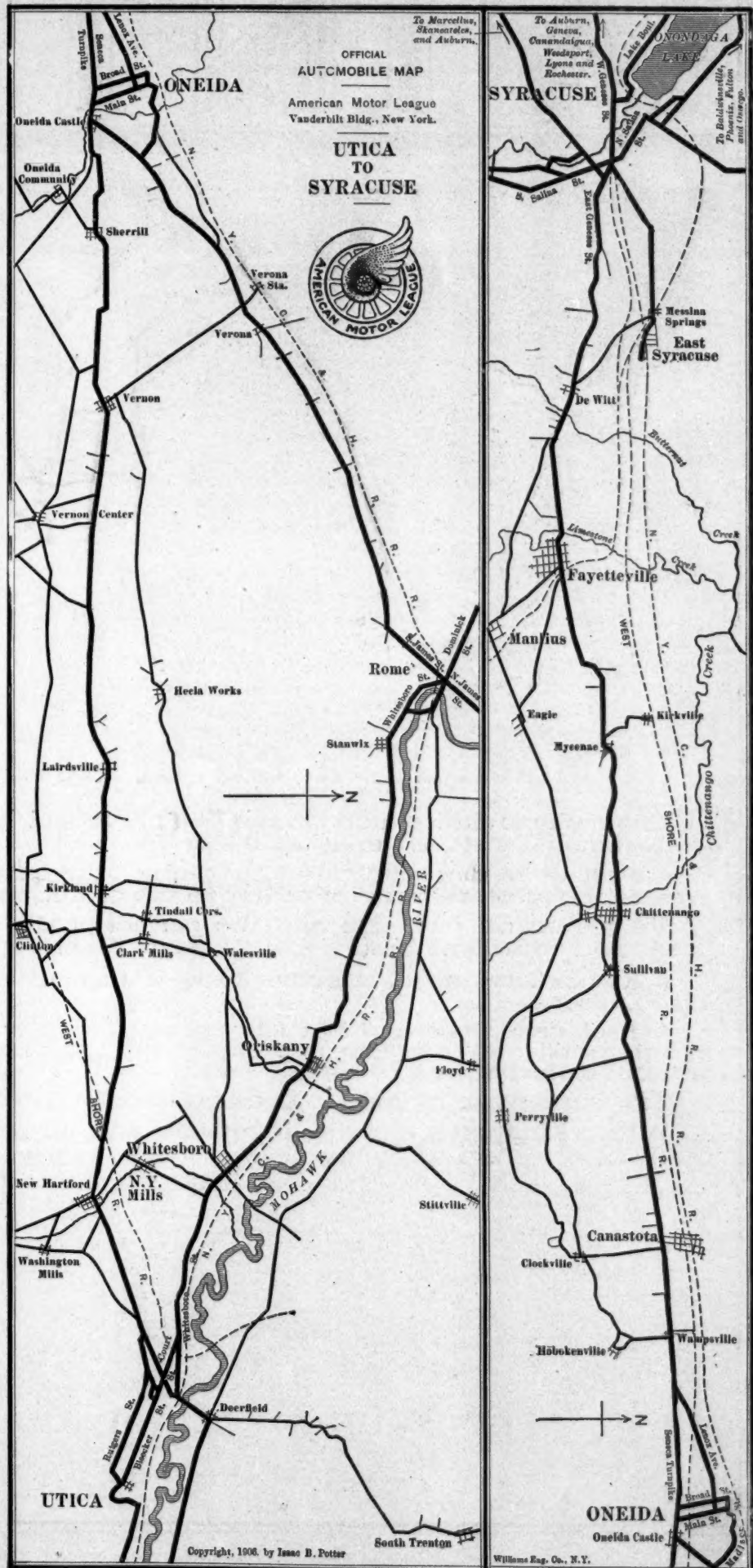
MAP OF ROUTE

UTICA TO SYRACUSE

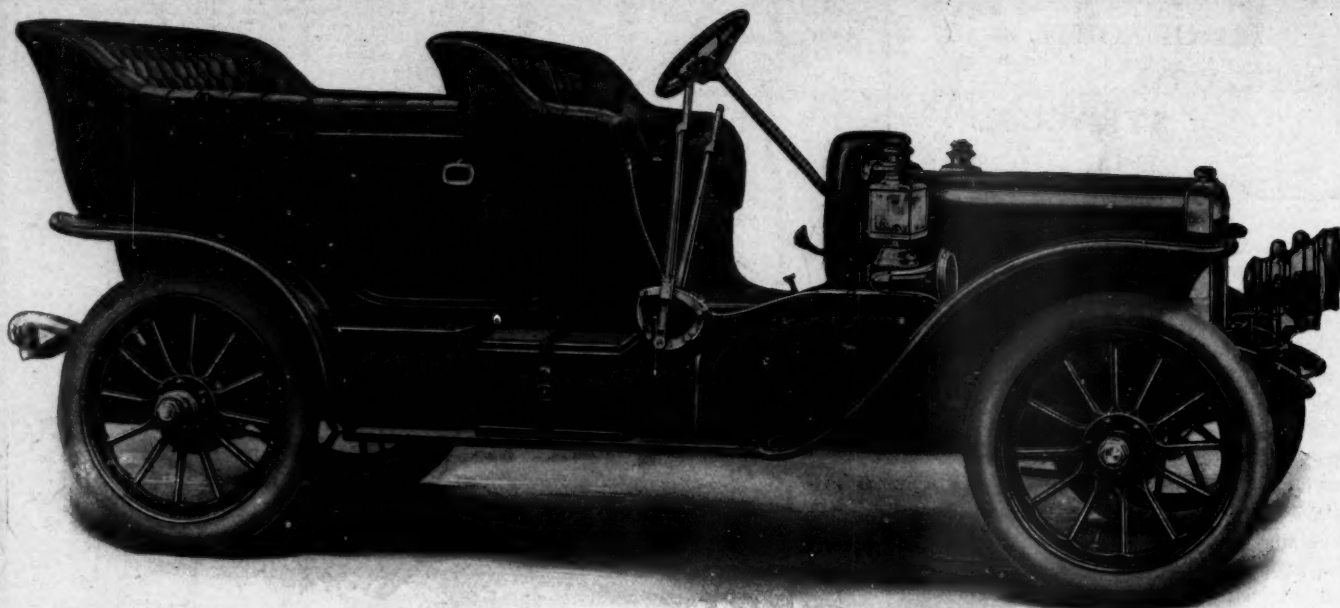
The direct and customary through route between these cities is via New Hartford, Kirkland, Vernon and Oneida Castle, at which last named place it is joined by the northerly route which follows the Mohawk valley and railroad line to Oriskany, Rome and Verona. This northerly route is about $3\frac{1}{2}$ miles longer than the first mentioned, the distance from Utica to Syracuse by the two routes being about 51 $\frac{1}{2}$ and 55 miles, respectively. From Oneida Castle the main road passes westward just south of Oneida and again a little south of Canastota, both important towns and both within hailing distance of the Seneca turnpike shown by the heavy black line on the map. In this map, as in all others, branch roads to adjacent towns are shown by medium heavy lines, while unimportant branch roads running out from the main route are indicated by short spurs. Important routes running in northerly and southerly directions from Utica, Oneida, Rome and Syracuse will be shown on separate maps.

These maps, and all others printed on this page, will appear in the official road books of the A. M. L., of which each member will receive a free copy. Each map will be accompanied by a full description of the route with list of the best hotels, garages and interesting points. Meanwhile, for convenient use, these maps will be printed on cards of tough material, with route description on reverse side. Each member will receive ten cards, and from month to month a complete catalogue or list of completed route cards will be prepared and sent to members for reference and information. Meanwhile, if any error is detected by members familiar with these locations the secretary will gladly take steps to correct it if our members will kindly communicate with the main office in New York city.

There is a wide demand for these maps, which are being made as fast as reliable information is sent in. They will be made more rapidly in the future. If the reader believes that his work is a worthy one his name should be on the membership roll. There is no initiation fee. Dues, \$2 a year. Full printed information will be sent on request. Address American Motor League, Vanderbilt building, New York.



WINTON



Model M, a Car of Good Features

The multiple disc clutch on the Winton Model M takes the fourth speed from standing start as gently as the first.

Off-set cylinders eliminate "knocking" and piston side-thrust. Give the greatest possible delivery of power to the crank shaft.

Valves all on one side and the perfect profile of cams make the motor lively and rapid, and assure a wide range of motor speed.

Four speeds ahead, selective type transmission, with DIRECT drive on THIRD speed.

Off-set cam shaft and but four springs for eight valves—the newest thing in automobile construction, and one of the very best. Cam shaft removable without disturbing valve adjustments.

Low suspension of motor gives practically horizontal drive shaft.

All working parts directly accessible, and all materials tested to provide the Winton feature of Safety.

Four cylinder, 40 H. P. motor.
Mechanically throttled carburetor.
Ground cylinders, pistons and bearing surfaces.

Jump spark ignition.
Centrifugal pump cooling.
Perfected Winton twin springs.
Trustworthy "Shooting" oiler.

Tough I-beam Parson's manganese bronze front axle.
Ball and roller bearings properly distributed.
Seven passenger body.

Equipped with two head lamps, two side lamps, tail lamp, trunk carrier, horn, tools, etc.
\$3,500 f. o. b. Cleveland.

Preliminary circular No. 3 describes Model M in detail. Book No. 4 describes Winton Type X-I-V, 30 H. P., \$2500.

The Winton Motor Carriage Co.

Member A.L.A.M.

CLEVELAND, OHIO, U. S. A.